PAS 2000

Construction products – Bringing safe products to market – Code of practice

IMPORTANT INFORMATION

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Contents

Foreword

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Information about this document

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0 Introduction

0.1 Background to construction product regulation in the UK

This PAS sets out what a construction product manufacturer is reasonably expected to do to assess the safety of a product before it is placed on the market.

At the time of publication, the regulation of construction products in the UK is undertaken by (EU) Regulation 305/2011 [1], the Construction Products Regulation 2011 (CPR), and the Construction Products Regulations 2013 [2], both as subsequently amended by "The Construction Products (Amendment etc.) (EU Exit) Regulations" 2019 [3], 2020 [4] and 2022 [5].

Under this regime the safety of construction products is regulated by the National Regulator for Construction Products which is part of the Office for Product Safety and Standards and was established through "The Construction Products (Amendment) Regulations 2022" [5] under powers contained in Schedule 11 of the Building Safety Act [6]. Local Authority Trading Standards (Environmental Health Officers in Northern Ireland) also regulate the CPR [1].

A significant element of the regulatory regime is the system of British and European "designated standards".

NOTE 1 A designated standard in the UK is currently equivalent to a harmonised standard in the EU and in other countries which are members of CEN, the European Standards body, but not EU members. Where a product or family of products is covered by a harmonised standard then compliance with the standard is required to enable the product to be CE marked. The detailed requirements for demonstrating compliance are determined by the European Union through a number of delegated acts and are set out in an Annex to the harmonised standard. Manufacturers may also choose to use the UKCA mark for products placed on the market in Great Britain.

NOTE 2 (EU) Regulation 305/2011 [1] has been repealed and is replaced by Regulation (EU) 2024/3110 [7]. This Regulation replaces the 2011 Regulation [1] and amends the rules for CE marking of construction products in Europe. It is EU regulation and has not been transposed into UK law.

Following the Independent Review of Building Regulations and Fire Safety published in 2018 [8], the disclosure of evidence about various construction products at the Grenfell Tower Inquiry in 2020 and 2021 [9] and the Independent Review of the Construction Products Testing Regime published in 2023 [10], Government has committed in its response to the Grenfell Tower Inquiry Report [11] to "reforming our construction products system".

The Independent Review of the Construction Products Testing Regime [10] indicated that approximately one third of construction products are currently the subject of designated or harmonised standards and to the requirements of the Construction Products Regulations [1] to [5]. Harmonised standards which contain requirements for Assessment and Verification of Constancy of Performance (AVCP) level 1+, 1 or 2+ already have Factory Production Control as part of the certification process required by the Regulation and that is deemed as appropriate for meeting relevant clauses of this PAS.

The remainder are outside the scope of designated standards, although if they are made available to consumers they may fall under the provisions of the General Product Safety Regulations 2005 [12]. Installation of a product which is not covered by a designated standard may still constitute building work and so that installation work falls under the scope of Building Regulations (Building Standards in Scotland) [13] to [15].

The Building Safety Act 2022 [6] including powers in Schedule 11, contains provisions for further regulation relating to construction product safety, including a general safety requirement for construction products. The Construction Products Reform Green Paper published for consultation in February 2025 [16] sets out Government's commitment to extend the current construction product safety regime beyond the system of designated standards and to deliver a "regulatory regime that provides confidence in safety and certainty about accountability". It

states that each company and person is to know what they are responsible and accountable for and that all involved in building and construction need the knowledge, expertise and commitment to ensure the quality, safety, and correct installation of construction products. Following the consultation period which closed in May 2025, Government is considering the responses and its policy response. It has committed to publishing regular updates on progress in the response to the Grenfell Tower Inquiry Report with the first issued in May 2025 [11].

The Green Paper [16] proposes measures to deliver a proportionate regulatory focus on construction products with plans to implement a proportionate, risk-based general safety requirement that applies to all construction products. Government also aims to make sure that construction product testing and certification bodies act in the public interest. It proposes a system to ensure that products are made to be safe and safely used, thereby encouraging investment in industry, skills and new technologies.

0.2 Purpose of this PAS

Against the background of the Green Paper [16] there is a very clear expectation that Government will significantly strengthen requirements relating to the provision of information about construction products. Clear, accurate, comprehensive and verifiable information will be required about a product's characteristics, appropriate uses, instructions for use and all relevant safety information. This will apply to products placed on the market by either manufacturers or any other economic operator, such as an importer, distributor, or an online marketplace.

This PAS seeks to describe the framework against which construction product manufacturers can show that they have taken all reasonable steps to enable them to demonstrate that their products are safe to be placed on the market. This will cover the intended uses for which they are marketed and will enable them to deliver comprehensive, accurate and reliable evidence to support their statements about the safety and performance of their products.

This information about construction products will also enable those managing buildings and constructed assets to maintain more accurate asset information.

EXAMPLE In England accurate construction product information can assist Accountable Persons to comply with the regulations about keeping and providing information about Higher Risk Buildings, known as the "Golden Thread".

0.3 Structure of this PAS

This PAS sets out five key elements in the system for manufacturers to deliver safe products to market:

1) pre-market development of products to meet all requirements;
2) reliable, credible and appropriate testing and certification;
3) robust factory production control to demonstrate that what is being produced day to day is the product that was initially developed and tested;
4) accurate and trustworthy product information supported by appropriate evidence to demonstrate the performance of the product and support the claim that it is safe for the intended uses for which it is placed on the market; and
5) clear processes for seeking and receiving feedback from the market on product use and performance and for dealing with legitimate complaints, concerns and problems with the product in practical everyday use, including processes for product recall where appropriate.

Each of these components of the system is covered in this PAS, which sets out what constitutes reasonable skill and care at each stage of the process. Clauses **7** and **8** describe the role of

standards in product assessment and certification and ongoing maintenance of product quality and safety.

Where there are currently no designated standards the PAS aims to enable manufacturers to demonstrate that their product development process demonstrates all reasonable skill and care prior to offering a product on the market as a safe construction product. This may be done through a technical approval process.

This PAS adopts many of the principles of PAS 7050. PAS 7050-1 supports manufacturers, designers, importers, distributors, repairers, refurbishers and the operators of online marketplaces to have the appropriate systems and processes in place to enable the production of safe consumer products. PAS 7050-2 is intended for use by regulators to support businesses in complying with PAS 7050-1.

1 Scope

This PAS provides recommendations for the due diligence to be carried out on construction products before they are placed on the market for use in buildings and other constructed assets.

This PAS covers pre-market risk assessment, assessment processes, factory production control processes, provision of product information and collection and use of market feedback.

It does not cover the process for undertaking third-party assurance and certification of construction products.

This PAS is of use to construction product manufacturers, importers, distributors and other economic operators.

This PAS is also relevant to construction product designers, building designers, contractors and sub-contractors, building owners, clients, procurers and accountable persons.

2 Normative references

There are no normative references in this document.[1]

3 Terms and definitions

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

3.1 behaviour
observable things that an individual does or does not do

[SOURCE: BS 8670-1:2024, **3.1**]

3.2 competence
application of skills, knowledge, experience and behaviour to achieve a defined outcome

[SOURCE: BS 8670-1:2024 **3.4**]

3.3 constructed asset
anything of value that is constructed or results from construction operations
[SOURCE: ISO 15686-1:2011, **3.2**]

3.4 construction product
formed or formless physical item, including 3D-printed products, or a kit, that is placed on the market, including by means of supply to a building or construction site, for incorporation in a permanent manner into a building or constructed asset or parts thereof, excluding items that need first to be integrated into a kit or another construction product before being incorporated in a permanent manner into a building or constructed asset

3.5 construction product information
any information about a construction product made available to internal and/or external stakeholders, including, but not limited to, product information given in writing, in print, online, electronically or in an advertisement

(SOURCE: Code for Construction Product Information [17])

[1)] Documents that are referred to solely in an informative manner are listed in the Bibliography.

3.6 construction products supply chain
network that includes those who design, specify, manufacture, process, fabricate, distribute sell, import or install a product, including suppliers of raw materials, parts or components for inclusion in a construction product

3.7 corrective action
action intended to remedy reported failure, remove potential for harm and to reduce risk

[SOURCE: ISO 10393:2013, **2.4** modified, wording added]

3.8 demonstrated scope of application
foreseeable use of construction product(s) which are clearly established using appropriate recorded evidence or conclusions

3.9 designated standard
standard designated by the Secretary of State in accordance with relevant construction products regulations

3.10 economic operator
manufacturer, their authorised representative, an importer, distributor or fulfilment service provider or any other natural or legal person who is responsible for manufacturing or remanufacturing of construction products, including products to be reused, or for making those construction products available on the UK market for incorporation into a building or constructed asset

3.11 essential performance characteristics
characteristics of a construction product which relate to the safety of the product when incorporated into a building or constructed asset

3.12 expanded scope of application

proposed application which has yet to have a demonstrated scope of application (**3.8**), that is justified on the basis of further appropriate evidence of performance which may or may not be foreseeable

NOTE Defining and describing an expanded scope of application requires the involvement of a competent person or persons.

3.13 hazard
potential source of harm to humans, property or the environment

[SOURCE: ISO/IEC Guide 51:2014, **3.2** modified, wording added]

3.14 hazardous situation
circumstance in which people or property are exposed to one or more hazards

[SOURCE: ISO/IEC Guide 51:2014, **3.4**, modified, wording omitted]

3.15 intended use
use of a product in accordance with information provided by the supplier

[SOURCE: ISO/IEC Guide 51:2014, **3.6**, modified, reworded]

3.16 organization
entity or group of people and facilities with an arrangement of responsibilities, authorities and relationships and identifiable objectives

NOTE For the purposes of this PAS, organization does not include Government acting in its sovereign role to create and enforce law, exercise judicial authority, carry out its duty to establish policy in the public interest or honour the international obligations of the state.

[SOURCE: ISO 26000:2010, **2.12**]

3.17 pre-market risk assessment
analysis of the essential product characteristics required of the intended construction product in reasonably foreseeable conditions of use in a building or constructed asset

3.18 product recall
corrective action taken post-production to address health and safety issues associated with a product

[SOURCE: ISO 10393:2013, **2.12** modified, wording omitted]

3.19 product safety assessment plan
plan for assessing the safety of a proposed product before placing it on the market

3.20 protective measure
means used to reduce risk

NOTE Protective measures include risk reduction by inherently safe design, protective devices, personal protective equipment, information for use and installation, and training.

[SOURCE: ISO/IEC Guide 51:2014, **3.13**, modified, note added]

3.21 reasonably foreseeable conditions of use
use of a product that is capable of being known or anticipated in advance based on a supplier's best knowledge about the product

[SOURCE: ISO 10377:2013, **2.6**]

3.22 reasonably foreseeable misuse
use of a product or system in a way not intended by the supplier, but which can result from readily predictable human behaviour

NOTE Readily predictable human behaviour includes the behaviour of all types of users.

EXAMPLE Use of joist hangars, supports or straps in a manner not included in manufacturer's installation instructions or technical literature

EXAMPLE Incorrect and inappropriate use of a product that is readily available to an installer to avoid taking time to obtain the correct and appropriate product or component required

[SOURCE: ISO/IEC Guide 51:2014, **3.7**, modified, examples added]

3.23 risk
combination of the probability of occurrence of harm and the severity of that harm

[SOURCE: ISO/IEC Guide 51:2014, **3.9**, modified, note omitted]

3.24 risk assessment
process of quantification of the presence, likelihood and level of risk

[SOURCE: PAS 7100:2022, **3.1.16**]

3.25 risk reduction
actions or means to eliminate hazards or reduce risks

3.26 safe product
product which under normal or reasonably foreseeable conditions of use presents as low a risk to the health or safety of persons as is compatible with using the product

NOTE 1 In assessing the safety of a product, the following points, in particular, are taken into account:

a) the characteristics of the product, including its composition, packaging, instructions for assembly and, where applicable, for installation and maintenance;

b) the effect on other products where it is reasonably foreseeable that it will be used with other products;

c) the presentation of the product, the labelling, any warnings and instructions for its use and disposal and any other indication or information regarding the product.

NOTE 2 Neither the feasibility of obtaining high levels of safety nor the availability of other products presenting a lesser degree of risk constitute grounds for considering a product to be "dangerous".

(SOURCE: General Product Safety Regulations 2005 [12], modified, wording omitted)

3.27 safety
freedom from unacceptable risk to the health and safety of persons arising from any aspect of the use, installation and ongoing performance of a construction product incorporated into a building or constructed asset

3.28 safety culture
enduring values, attitudes, motivations and knowledge of an organization in which safety is prioritized over competing goals in decisions and behaviour

[SOURCE: ISO 26262-1:2018, **3.136**]

3.29 senior management
individual or group(s) who directs and controls an organization including strategic level management positions or who have responsibility for safety assigned under health and safety legislation

EXAMPLE Chief Executive Officer (CEO), Chief Technology Officer (CTO), Chief Operating Officer (COO), Chief Financial Officer (CFO).

NOTE Senior management are sometimes referred to, within organizations, as executive management, top management, upper management and higher management.

[SOURCE: ISO/TS 5441:2024, **3.16**, modified, wording added]

3.30 supplier
organization or person that provides a construction product or service

EXAMPLE Designer, producer/manufacturer, importer, distributor, or retailer of a product.

NOTE 1 A supplier can be internal or external to the organization and may be the manufacturer or another economic operator. A supplier may provide raw materials, parts or components for inclusion in a construction product

NOTE 2 In a contractual situation, a supplier is sometimes called "contractor".

[SOURCE: ISO 9000:2005, **3.3.6**, modified, wording added]

3.31 traceability
ability to track a product or component forward through specified stages of the supply chain to the user, and trace back the history, application or location of that product or component

3.32 unforeseeable misuse
use of a product in a manner that a supplier cannot reasonably know or anticipate

[SOURCE: ISO 10377:2013 **2.28**]

3.33 user
end user
person or organization (**3.16**) which uses construction products (**3.4**) from a supplier (**3.30**)

4 Basic principles for construction product safety

*COMMENTARY ON **Clause 4***

UK Government has committed to extend the requirement for construction products to be safe to cover all products, including products covered by a designated standard or a formal technical approval process as well as those products for which there is currently no designated standard. It covers products which require conformity (CE) marking and those which adopt it voluntarily through a technical approval. This PAS sets out the basic principles which may be adopted by any construction product manufacturer or economic operator responsible for placing a construction product on the market in order to enable them to demonstrate that they have exercised reasonable skill and care to assess the safety of the product before placing it on the market.

*Adopting the basic principles set out in **4.1** to **4.6** enables participants in the construction product supply chain to develop and maintain a shared commitment to construction product safety. This approach includes a commitment to the prompt implementation of corrective action when hazards are identified as a result of incorrect design, deficiencies in the production process and problems during distribution or storage of products. It also includes a commitment to appropriate levels of product testing and certification and to the provision of accurate, comprehensive and reliable evidence of testing and certification information, from third-parties where appropriate.*

This PAS draws on the guidelines for consumer product safety contained in ISO 10377:2013 which provides practical guidance for consumer product suppliers of all sizes to assist them in assessing and managing the safety of the consumer products which they supply, starting with the design of the product.

4.1 Committing to providing safe products

The safety of construction products should be addressed from the initial product design stage.

NOTE 1 Doing so can help manufacturers to demonstrate the accuracy of any information that they provide about the safety of products and the uses for which they have been designed.

Where a product is to be manufactured for a specific installation, the manufacturer should consider and specify the information that they require about the installation in order to manufacture the product to be safe for that installation.

EXAMPLE Products such as prefabricated structural elements, units of a cladding or façade system, windows, fire doors or air distribution equipment are all manufactured for specific installations. They require design information specific to that installation to be provided to the manufacturer to enable the manufacturer to provide the product for that specific installation.

NOTE 2 Addressing the safety of construction products from the design stage might help to avoid the potential costs of product liability claims, as well as the costs of recalling unsafe products, of redesign of the product and associated retooling and manufacturing changes.

Management should assign responsibilities for implementing these principles and the recommendations contained in this PAS. Those assigned responsibility should be demonstrably competent to undertake the responsibilities assigned.

NOTE 3 One individual may be assigned more than one responsibility.

Where a product is manufactured for a specific installation those responsible for providing installation specific design and information to the product manufacturer should be demonstrably competent to deliver the required information to enable the product to be safe when supplied.

Product manufacturers should not be responsible for modifications or alterations to the product once it has left their control.

Management should provide appropriate resources for:

a) hazard identification and risk assessment;

b) product design;

c) manufacturing processes;

d) quality management processes;

e) training;

f) information management;

g) marketing and communication management;

h) monitoring and continuous improvement;

i) product traceability;

j) recall; and

k) user feedback about the products.

Once a construction product is being manufactured, senior management should be accountable for any changes in product design, substitution of constituent materials or components, or changes in production processes. Senior management should also be accountable for maintaining the information for communication and marketing material about the product made available to product users.

4.2 Promoting a product safety culture within the organization

Construction product safety should be adopted in the organization's governance structure.

NOTE 1 This can be accomplished by adopting a product safety management plan that is implemented and endorsed by the governing body and/or senior management. A product safety management plan may be based on the quality assurance manual for the organization or it may be a specific product safety management plan developed for the organization.

The organization should take reasonable steps to identify, understand and comply with all relevant standards that apply to the construction product produced for each marketplace in which the product is manufactured or sold. Responsibility for compliance should be assigned with appropriate resources allocated to develop, maintain, monitor and continually improve the overall approach to construction product safety and competence in the organization.

The organization should have a clear policy for assessing, maintaining and developing the competence of all staff contributing to the construction product or product information, including those involved in product design, providing installation instructions or maintenance information.

NOTE 2 Different geographical locations are affected by local legislation.

4.3 Promoting a product safety culture outside the organization

An organization which manufactures or supplies construction products should promote a construction product safety culture throughout its supply chain. This should include those organisations that supply raw materials, components or subassemblies as well as those who design and install buildings and constructed assets which use the products.

Construction product manufacturers should introduce competence requirements for their supply chain so that those who provide raw materials, components and subassemblies are operating under similar procedures and competence requirements to the personnel within the manufacturing organization.

Construction product manufacturers should actively encourage the adoption of the good practices described in this PAS by their supply chain and should set appropriate requirements for commitment to a culture of product safety through their supply chain.

Construction product manufacturers should offer technical training and continuing professional development (CPD) opportunities to those who design, install or in some cases maintain and operate their products.

Construction product manufacturers should have CPD or training materials evaluated by suitably competent people and they should be delivered by competent trainers.

NOTE 1 Manufacturers might consider the benefits of offering CPD which has been reviewed by a competent external body.

NOTE 2 Such promotion might include setting contractual provisions or other incentives, promoting good industrywide practices, forming partnerships with sector organizations and others, sharing information, and providing users with the information they need to assemble, use, maintain and dispose of a construction product safely.

NOTE 3 Trade associations have an important role to play in providing good practice product information and they are good contact points for obtaining product information and advice within the sector.

4.4 Continual improvement

A structured approach to continual improvement should be applied to safety in product design, product information and marketing and experience from the marketplace. The approach should define objectives for the improvement of construction products and processes through analysis of product performance data and examples of use obtained from real applications and marketplace feedback.

For products which are manufactured to order for specific circumstances, continual improvement should include feedback from specifiers of products in the market.

NOTE An example of a product which is made to order for specific customers in response to project specific requirements is a fire door.

Continual improvement activities and their outcomes should be recorded and reviewed at appropriate intervals by management to determine whether continual improvement objectives are being met and to take appropriate corrective action where required.

4.5 Precautionary approach

The precautionary approach means that a lack of complete scientific certainty should not be used as a reason to postpone risk reduction measures, especially where there are threats of serious or irreversible damage to life, safety or human health. Where it is found that a construction product could create an identified risk to life or cause serious harm to people or the environment in a specific application then the further use of that product in that application should be suspended until the safety of the product is confirmed through an appropriate technical evaluation by the manufacturer involving peer review by suitably competent people. This applies whether the application was originally foreseen by the manufacturer or not.

*NOTE Where such a risk to life is identified in a particular application then the risk needs to be addressed in buildings where it has been used and consideration given by the manufacturer to the reasonably foreseeably conditions of use of the product. Clause **10** (Product recalls) may also be relevant. It may also be appropriate to report the issue to the Collaborative Reporting for Safer Structures Scheme, CROSS[2], which is a confidential scheme for raising structural and fire safety concerns.*

4.6 Sharing of information

The organization should share information on a continuous basis on the product's performance, compliance and risks with other members of the supply chain. It should provide clear information to users and should have a clear, open and transparent mechanism for receiving and acting on feedback on the real-life performance of the product.

NOTE 1 Attention is drawn to The Building Safety Act 2022 [6] regarding duties to collaborate and to share information on building and construction projects in England. Where the construction product supply chain is involved in design activity these duties extend to construction product manufacturers and suppliers. Regulation 11K of the Building Regulations 2010 [13] to [15] as amended by the Building Regulations etc. (Amendment) (England)

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[2] Available at https://www.cross-safety.org/uk.

Regulations 2023 (11) [18] places a duty on anyone providing a design: "In providing a design, a designer must take all reasonable steps to provide sufficient information about the design, construction and maintenance of the building to assist the client, other designers and contractors to comply with all relevant requirements."

NOTE 2 Information sharing is a requirement of The Higher-Risk Buildings (Keeping and Provision of Information etc.) (England) Regulations 2024 [19]. These regulations specify the information and documents that the principal accountable person and accountable persons have to keep and share with those who have an interest in relation to a higher-risk building, and may include information about products that play a role in the safety of the building.

5 Product safety assessment plan

5.1 Overview

A manufacturer of construction products should have a product safety assessment plan (PSAP) in place which identifies the steps necessary for the manufacturer to demonstrate that a product is safe for all reasonably foreseeable conditions of use for which it is placed on the market.

As the first step in developing the PSAP a manufacturer should undertake a pre-market risk assessment, which should assess the:

a) reasonably foreseeable conditions of use of the product in the built environment;

b) intended demonstrated scope of application;

c) performance characteristics that the product needs to demonstrate for these uses;

d) information, including test data, required by a building designer or specifier to safely specify the product or include it in a design for a building or constructed works; and

e) information which competent installers require to safely use, install or incorporate the product into a building or constructed works.

5.2 Essential performance characteristics

5.2.1 General

The PSAP should identify the relevant essential performance characteristics of the proposed product. These are all characteristics of the product that enable it to be safely incorporated into a building or constructed works so that the building or constructed works complies with the relevant building regulations or standards.

EXAMPLE If a product is to be incorporated into an external wall or façade of a building, that element needs to comply with relevant requirements relating to its reaction to fire and resistance to fire. It also needs to be structurally sound, resist moisture ingress and sound and achieve thermal performance requirements. There may also be requirements relating to emissions from the product and its sustainability.

The recommendations given in **5.2.2** to **5.2.9** should be used as the basis for the identification of the essential performance characteristics of products, kits, or systems when installed by a competent person.

*NOTE 1 **5.2.2** to **5.2.9** reflect the 8 basic requirements of construction products used in the development of European harmonised standards.*

NOTE 2 If a product falls within the scope of a harmonised standard then the standard details the essential performance characteristics for that product and to place the product on the market it has to comply with the requirements of the standard to be placed on the market in the EU. The EU may also prescribe third-party testing or certification of performance against some or all of those characteristics.

Once the essential performance characteristics have been determined then the manufacturer should develop the product so that it is able to perform so as to meet the requirements. They

should also undertake appropriate testing to demonstrate that the performance of the product, kit or system meets the requirements.

5.2.2 Structural integrity

A product which performs any structural function should be designed and manufactured so that when it is incorporated into a building or constructed asset the product:

a) enables all relevant loads and any combinations of them to be resisted, sustained and transmitted safely;

b) is durable for the intended life span;

c) is capable of withstanding all actions and influences likely to occur during construction, installation, use and deconstruction or demolition, and it should not collapse or deform to an inadmissible degree or so as to damage other parts of the constructed asset;

d) remains within the specified structural service requirements during the intended life; and

e) maintains the specified structural integrity when exposed to adverse events, including earthquake, explosion, fire, impact, flooding or consequences of human errors.

NOTE Attention is drawn to the Building Regulations as applicable in England, Wales, Scotland and Northern Ireland ([13] to [15]) or standards applicable in the United Kingdom or such other regulations as might apply to constructed asset into which the product could be reasonably expected to be incorporated.

5.2.3 Fire safety

When the product is installed or incorporated into the building or constructed asset it should have appropriate reaction to fire, resistance to fire and other fire related properties required by building regulations and standards where relevant, such as limiting the risk of smoke spread.

When designing a building or constructed asset the designers or fire engineers or both should be provided with or obtain information about the ability of the product, when installed or incorporated into the building or constructed asset to:

a) maintain the designed load-bearing capacity of the building for a defined period of time to enable occupants safely to leave the building;

b) protect means of escape and access for firefighters such as corridors, lobbies and stairs by keeping them free of fire and the effects of fire;

c) maintain functions that limit the risk of the wider spread of combustion products within the building;

d) limit the generation and spread of fire and smoke to adjacent parts of the building or constructed asset; and

e) maintain fire and rescue services access.

5.2.4 Protection from adverse hygiene and health impacts

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset it does not adversely affect the hygiene, health or safety of construction workers, building occupants, visitors or those in and around the building throughout the intended life span due to any of the following:

a) emissions of hazardous substances, volatile organic compounds or hazardous particles, including microplastics, into indoor air;

b) emission of hazardous radiation into the indoor environment;

c) release of hazardous substances into drinking water or substances which otherwise have a negative impact on drinking water;

d) the passage of moisture to the interior of the building; or

e) faulty discharge of wastewater, emission of flue gases or faulty disposal of solid or liquid waste into the indoor environment.

5.2.5 Safety and accessibility

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset it does not create unacceptable risks of accidents due to slipping, falling, collision, burns, electrocution or injury from falling objects caused by external factors including extreme weather conditions or explosions.

The product should be designed and manufactured taking into consideration accessibility and use by people of protected characteristics who may have limited mobility or orientation.

5.2.6 Resistance to passage of sound

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset it provides appropriate acoustic performance and resistance to transmission of sound through the air or through other parts of the building or constructed asset, including from external sources. The product should provide protection against acoustic conditions that could:

a) create immediate or chronic risks for human health; or

b) prevent occupants and those around the building to sleep, rest and engage in their normal activities in satisfactory conditions.

5.2.7 Energy efficiency and thermal performance

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset it enables the building to comply with relevant building energy requirements in regulations or standards, having regard to relevant:

a) targets for net zero carbon buildings;

b) outdoor climate throughout the intended life span of the product; and

c) indoor climate conditions.

5.2.8 Emissions into the outdoor environment

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset and commissioned and maintained throughout its life cycle, it does not pose a significant risk to the outdoor environment as a result of any of the following:

a) release of hazardous substances, microplastics, or radiation into air, ground water, marine or surface waters or soil;

b) faulty discharge of waste water, emission of flue gases or faulty disposal of solid or liquid;

c) waste to the outdoor environment;

d) damage to the building, including damage through the transport of water-borne contaminants to the foundations of the building; or

e) the release of greenhouse gas emissions into the atmosphere.

5.2.9 Sustainable use of natural resources

The product should be designed and manufactured so that when it is installed or incorporated in a building or constructed asset and throughout its life cycle, the use of natural resources is sustainable and ensures the:

a) maximization of the resource efficient use of raw and secondary materials of high environmental sustainability;

b) minimization of the overall amount of raw materials used;

c) minimization of the overall amount of embodied energy;

d) minimization of the waste generated;

e) minimization of the overall use of drinking and service water;

f) maximization of the reuse or recyclability of the building or constructed asset, in part or in whole, and of their materials after deconstruction or demolition; and

g) ease of deconstruction.

5.3 Safety considerations in design

5.3.1 Reasonably foreseeable conditions of use

Construction product manufacturers should design construction products to be safe when used within the demonstrated scope(s) of application (**3.8**) or for reasonably foreseeable purposes.

A demonstrated scope of application should be made based on practical evidence and/or conclusions and a recorded decision process supported by one or more of the following as appropriate:

a) appropriate test evidence;

b) relevant third party technical assessments;

c) direct evidence of safe application; and/or

d) design standards.

NOTE 1 Test evidence can be derived from a number of sources. For a designated or harmonised standard the tests are prescribed in that standard. For a product made to an existing international, European or British Standard or a technical assessment then tests are defined in that standard or assessment. Where there is not currently a formal standard then testing might be described in industry guidance.

In the absence of tests outlined in Note 1, a manufacturer should develop an evidence base to justify any claim made about the performance and safety of the product.

Manufacturers should have an understanding and knowledge of the intended uses of a particular product and should also have a knowledge of how it is used in practice. Manufacturers should design products so that they can be used in compliance with relevant existing standards or technical approvals by competent designers and installers.

Manufacturers should also design products and associated technical information to support their incorporation into building designs by competent designers.

Manufacturers and suppliers of components or parts of products, kits or systems should demonstrate the suitability of the component or part for incorporation into another product, kit or system. This may include appropriate testing and feedback from practical use.

NOTE 2 This knowledge can be derived from several sources, including:

- *the use of a product consistent with its function and design, including technical data on the function and design of the product;*
- *evidence and information from third-party testing or certification bodies;*
- *evidence of the use of a product based on observation of actual practice by the supplier and from wider industry knowledge of the use of that particular product; and*
- *evidence of use of a product based on feedback from users, including claims for reportedly faulty product, product returns, warranty claims, repairs and replacements and lawsuits.*

5.3.2 Foreseeable misuse

Construction product manufacturers should have an understanding and knowledge of how a construction product could be misused or misassembled. The product design should remove or reduce the likelihood of potential misuse of the product. Product information should clearly identify any potential misuse and explicitly warn users against it in technical, marketing and communications material, whether in print or online and take all reasonable steps to make sales staff fully aware of the potential misuse and consequences and the need to warn potential users.

NOTE 1 Construction product manufacturers can obtain knowledge about potential misuse or misassembly from several sources, including:

a) evidence of the use of a product based on observation of actual practice by the supplier and from wider industry knowledge of the installation and use of that particular product;

b) evidence of use of a product based on feedback from users, including claims for reportedly faulty product, product returns, warranty claims, repairs and replacements and lawsuits;

c) information and trends derived from marketing and purchasing data, including analysis of marketing and technical sales inquiries;

d) industry knowledge of custom and practice in the use of that particular product; and

e) reports of failure caused by the users incorrectly assembling, installing, maintaining and using the product according to manufacturers directions or instructions.

NOTE 2 Examples of foreseeable misuse include:

1) designer specifies the product incorrectly for the application based on assumptions from previous experience chasing in light weight blocks;

2) use of a fire damper installed into a wall of a type or construction which it has not been tested for;

3) use of fixings in environments for which they are not suitable;

4) use of products in aggressive environments for which they are not suitable;

5) incorrect application of intumescent paint;

6) use of mild steel or galvanised steel cavity wall ties and supports to brickwork cladding in a marine environment;

7) inappropriate application of adhesives;

8) incorrect fire rated partition wall components; and

9) a product designed for a specific environment used in a different application.

5.3.3 Unforeseeable misuse

When establishing procedures for receiving feedback from the market, manufacturers should record potential misuse of their products or similar products as a possible reason for failure. This feedback should be monitored and analysed to identify repeatable patterns.

Where previously unforeseen misuse is identified then the construction product manufacturer should assess whether it is appropriate to change the design, update installer training or to modify the user instructions or other product information.

NOTE 1 Identifying potential misuse of a construction product in a manner that is not intended or readily foreseen is difficult.

NOTE 2 Existing research and development testing may also help to inform manufacturers about potential ways in which a product, component or part may be misused.

6 Design assessment of product safety

6.1 Assessing product testing requirements

The construction product manufacturer should assess the requirements for testing of the product and adopt testing and assessment procedures proportionate to the risk of non-performance. Where failure could cause a risk to life safety, product manufacturers should demonstrate that testing and assessment procedures fully address that potential failure.

NOTE 1 Users of this PAS are advised to consider the desirability of using test laboratories.

The construction product manufacturer should identify the product testing requirements for all performance characteristics identified in any relevant standard or technical approval procedure.

*NOTE 2 For innovative product manufacturers have a duty to demonstrate that the product has been designed to satisfy all the essential characteristics set out in **5.2**.*

All claims about the performance of a construction product should be supported by appropriate evidence from performance testing to an appropriate standard.

NOTE 3 In some cases, the construction product manufacturer might choose to adopt independent testing and assessment procedures to improve regulatory and user assurance of the compliance of the product with relevant standards and of its safety in use. Construction product manufacturers are advised to consider the desirability of selecting test laboratories that are accredited to BS EN ISO/IEC 17025 by a national or international accreditation body.

NOTE 4 Third-party testing might be specified by clients, by contracts, by designated or harmonised standards or by other relevant rules governing the use of the product in certain end uses.

NOTE 5 Construction product manufacturers might choose to consider the desirability of quality system assessment and registration against the appropriate standard in the BS EN ISO 9000 series carried out by an accredited third-party certification body.

The construction product manufacturer should obtain appropriate test data on the product in the form that it is to be placed on the market. The product testing should be carried out on the product using the precise composition, geometry, fixings and ancillary components to be used when the product is placed on the market. Where testing is carried out to a recognised standard or technical approval procedure the test should be configured as set out in the standard or approval procedure.

The construction product manufacturer should determine the factory production control process for the product to provide assurance that the production of the product delivers consistent production as defined by relevant industry and international standards. Factory production control records should be kept to demonstrate that the production processes are consistent and controlled and that the product is manufactured within specified tolerances that correlate with the design specification of the product.

NOTE 6 Factory production control might require third-party assessment.

If the product is changed in any way then the construction product manufacturer should determine the performance of the product in its modified form. The manufacturer should determine and demonstrate with clear test evidence how the modification to the product, including changes to the composition, geometry, fixings and ancillary components, changes the performance and demonstrate that test data obtained from the unmodified product is still

appropriate to the modified product. Any third-party involved in testing or verification of product performance should be made aware of the changes.

Technical, marketing and installation information should be updated to reflect the change to the product.

NOTE 7 This might also require third-party testing and accreditation to be repeated.

Where a product is changed then the manufacturer should assess the effect of the modification on the safety of the product. The manufacturer should demonstrate that the change to the product does not increase the risk arising from the use of the product by undertaking appropriate further testing. Manufacturers should not rely on assumptions or desk-based assessments of the impact of modifications on the safety of the product.

NOTE 8 ***Product testing and certification****. Users of this PAS are advised to consider the desirability of third-party testing and certification to provide added user assurance of the safety and reliability of the product.*

6.2 Recording the design specification process

Construction product manufacturers should record the design specification process to demonstrate what performance characteristics were considered and why they were included or excluded from the final specification, and how the manufacturer has demonstrated that the product is safe for the intended use or for any reasonably Foreseeable conditions of use. They should record the evolution of the product design and development, comparison or benchmarking against other similar products and what was done to investigate any history of incidents or problems with the product or similar products.

NOTE Creating, maintaining and updating these records can enable construction product manufacturers to demonstrate that they have taken reasonable skill and care in the development of a product which is safe for the intended use or for any reasonably foreseeable conditions of use. This information might also be required for traceability, product redesign and legal and regulatory compliance.

The construction product manufacturer should establish and maintain procedures to record, control, retain and retrieve all relevant information and data related to design, production and the marketplace. These should be proportionate to the potential risks of failure of the product and include as appropriate:

a) records arising from the implementation of this PAS, including details of the competence of all key personnel involved in the design and development of the product;
b) information created during the design stage, e.g.:
    1) risk assessments, including data and information used;
    2) significant design choices and decisions about the safety of the product for intended uses, which may include meeting minutes and technical papers;
    3) assessments of the technical feasibility of the product;
    4) drawings and specifications;
    5) design testing and inspection;
    6) identification and development of product quality and safety tests and prototype product samples;
    7) development of the factory production control process and testing procedure;
    8) validation of the design;
    9) validation of the factory production control procedure and frequency of testing;
    10) validation of warnings and installation instructions;

11) compliance with regulatory requirements and product specific industry standards;

12) an assessment of any third-party testing and conformity assessment requirements;

13) the options considered and actions taken to reduce or eliminate any risk; and

c) records from any user feedback or investigation of any reported incidents or problems with the product or similar products, including feedback from sales teams and installers as well as from technical support staff who visit sites where reports of potential problems may have occurred.

The information retained to record the design specification process should be adequate to demonstrate that the construction product manufacturer has taken all reasonable steps to assure themselves that the product is safe to be placed on the market for any reasonably foreseeable conditions of use. The information should also be sufficient to justify and evidence any and all claims made about the product by the manufacturer.

7 Safety of products in production and factory production control

*COMMENTARY ON **Clause 7***

This clause sets out good practices in production planning, management and control.

7.1 Producing safe construction products

Construction product manufacturers should record the procedures for the production of construction products. The product should be compliant with the product design specification and consistently demonstrate the performance characteristics that the product manufacturer claims for the product.

Construction product manufacturers should engage competent staff who have been trained in the production procedures to manufacture the product.

Construction product manufacturers should establish factory production control processes for all production.

Production processes should be proportionate to the level of risk associated with a failure of the product to meet the product specification.

NOTE Where appropriate to satisfy legal, contractual or client expectations the factory production control process might need to be certified against an appropriate standard by an accredited certification assessment body.

7.2 Planning for safe production

7.2.1 General

The construction product manufacturer should plan the production process during the pre-production design process.

NOTE This reduces the potential for product defects to be introduced during production.

The planning process should include:

a) confirmation of the final design to be used for production;

b) reviewing pre-production materials and prototypes built prior to production;

c) confirming the competence and training of relevant production personnel, and

d) completing a pre-production run to confirm that the production process produces the product in conformity to the final design.

The manufacturer should confirm that the product can be consistently manufactured in compliance with the specifications, without the introduction of defects, and at the required production rate.

7.2.2 Production readiness

7.2.2.1 Specifications

The product manufacturing facility should have the product specification, including the:

a) final design;

b) performance criteria;

c) material requirements for production;

d) raw materials;

e) components and subassemblies;

f) assembly requirements;

g) test schedule;

h) transport and handling requirements, and

i) packaging and labelling requirements.

7.2.2.2 Material procurement

Manufacturers should validate that all items provided by their supply chain match the specification for the item being supplied. In addition, before production begins, the organization should confirm that raw materials, components or subassemblies meet the design specifications and are neither at their end-of-life nor are unapproved replacements. Substitution of any material, component or subassembly should not negatively affect the performance of the product, which should be as it was when evaluated in accordance with **6.1**. Any modification or substitution of a raw material, component or subassembly should be approved by a senior manager with the necessary competence who should confirm that appropriate assessment of the change has been undertaken and fully recorded.

NOTE 1 Confirming the effects of substitutions might require additional testing and certification activity. It is therefore desirable to have adequate and available supplies of approved raw materials, components and subassemblies.

NOTE 2 Substitutions might require changes to product information.

7.2.3 Processes, controls and measures

7.2.3.1 General

The production facility should operate consistent procedures, controls and measures during operation for the production of safe construction products. These procedures, controls and measures should be recorded to demonstrate that the production facility meets the safety requirements determined during product design. The manufacturer should make employees aware of the procedures, controls and measures to be followed.

Control and measurement schedules for the production process should be included in the procedures. All equipment required for control and measurement or monitoring of production, including measuring instruments and analytical equipment, should be calibrated.

7.2.3.2 Training

The production facility should train employees in the procedures, controls and measures in place for production consistency and conformity to product specification. Suppliers of raw materials, components and subassemblies should record the procedures and staff training and competence assessment procedures which they operate regarding the raw materials, components and subassemblies that they supply to the construction product manufacturer.

7.2.3.3 Pre-production run

Where a product is manufactured using a continuous process the production facility should undertake a pre-production run to test its ability to manufacture the final product to the required specification and to demonstrate that the factory production control processes and production testing are appropriate. The pre-production run should demonstrate the safety of the product and show that it is possible for the product to be manufactured at the required production rate without introducing defects. Where the process cannot be interrupted without significant disruption then enhanced factory production and additional product testing should be undertaken during the initial period of production.

NOTE 1 Where products are manufactured to order according to specifications agreed with the user pre-production runs are not possible. Where the product does not meet the specification then the user is likely to require remanufacturing of the product.

NOTE 2 Modification of the final design might be necessary before full production begins. Depending on the extent of the modifications, a further pre-production run might be necessary to demonstrate that the cause of the modification has been successfully addressed.

7.2.3.4 Product verification

Items made during pre-production should be assessed for compliance with the specification and freedom from defects. The product should be compared to any prototype previously produced and tested in an environment that mirrors the eventual use of the product. If the product does not meet the performance specification then the various elements in **7.2.3.1** to **7.2.3.3** should be reviewed to determine what changes need to be made before the full production run is commenced.

7.3 Full production runs

7.3.1 General

In order to avoid introducing defects in production, the production facility should control all parts of the product during production, including raw materials, components, subassemblies, spare parts, accessories, packaging, labelling, product information and manuals.

NOTE Change management is essential for product safety.

Any changes that impact product design, raw material sourcing, or the manufacturing process should be assessed in line with **6.2** and the compliance with the approved product specification confirmed/verified to by a competent senior manager before changes are implemented.

7.3.2 Raw materials, components and subassemblies

Upon arrival at the production facility, every batch of incoming raw materials, components and subassemblies should be validated to confirm that it complies with the design specification and that it meets or exceeds the quality requirements specified.

NOTE 1 Validation may include testing of the supplies and inspection of information supplied with the raw materials, components and subassemblies.

NOTE 2 Third-party testing of raw materials, components and subassemblies may be adopted as part of the validation process.

Raw materials, components and subassemblies accepted by the production facility should be introduced into its inventory with full traceability, including their source, batch, lot date of manufacture and date of receipt by the facility.

Raw materials, components and subassemblies not meeting the quality specifications should be segregated so that they cannot be mixed with acceptable material. Processes should be in place to prevent them from being incorporated into the production process and to provide feedback to the supply chain on the reasons for rejection.

Subassemblies should be checked for compliance with the specification. The frequency of checking should be proportionate to the risks of non-compliance or failure of the subassembly. Where non-compliant units are found this should trigger further checking of other units received in that batch and should also trigger a review of the factory production control processes of the supplier.

EXAMPLE A subassembly could be a glass and glazing system for inclusion in a fire door. Compliance of the subassembly is critical to the compliance of the assembled fire door leaf.

The production facility should monitor non-compliant supplies and work with suppliers to achieve compliance.

7.3.3 Production control and monitoring

7.3.3.1 Production scheduling

Production should be scheduled to maximize efficiency, cost and energy savings, and reduce the risk of producing a nonconforming product.

7.3.3.2 Production consistency

A construction product manufacturing facility should produce products that are consistent from a safety and quality perspective across one or multiple production runs.

7.3.3.3 Production quality monitoring

The construction product manufacturer should monitor production quality to demonstrate the safety of the product, based on the design, materials and production planning.

Production quality should be monitored according to a recorded schedule and frequency as set out in the factory production control schedule for the product.

Production quality monitoring should be undertaken by and be the responsibility of production staff who are trained in the assessment and monitoring of product quality. Production staff should be responsible for sampling and testing undertaken in accordance with the factory production control schedule for the product.

Production staff should have the ability and authority to stop production if problems have been identified or to require, where the quality of the product of a continuous process is outside the specification, that the product is set aside until the product is brought back within the specification.

Production quality monitoring should be overseen by quality management staff to provide further assurance that the production staff are fulfilling their role.

7.3.3.4 Finished product testing

Finished product (or batch) testing should be carried out at the frequency specified in the procedures for monitoring production to demonstrate the conformity of the finished product. Where testing identifies nonconformities the manufacturer should take action to remove the nonconforming product from the market and prevent it being supplied to users.

NOTE 1 This includes the complete testing of the finished product and validation of its manual, labels and packaging to the product specifications.

NOTE 2 Conformity assessment bodies and testing laboratories can assist production facilities in demonstrating that all reasonable steps have been taken to produce a complying product.

8 Safety in product information

*COMMENTARY ON **Clause 8***

Demonstrating that a building is safe requires a full understanding of the products that are installed or incorporated into the building or constructed asset. A full understanding requires accurate, accessible, transparent, up-to-date, useful, comprehensive, consistent and unambiguous product information to be provided by product manufacturers.

8.1 Accurate, evidenced comprehensive and useful information

Construction product information should provide all information which a user may reasonably require to determine whether the product is considered safe for the intended use, installation or incorporation into a building or constructed asset. It should clearly identify the demonstrated scope of application for which it is intended to be used as well as any uses for which it is not intended.

Construction product information should be accurate, accessible, transparent, up-to-date, useful, comprehensive, consistent and unambiguous.

Construction product information should be supported by accurate evidence and free from misleading claims.

NOTE 1 For example, evidence can include product certification, evidence of test results or a technical assessment.

NOTE 2 Any claim about a product that cannot be substantiated by appropriate evidence is likely to be considered misleading.

Test results should state the construction product tested, and the location of the test. Where the test is a laboratory test this should be clearly stated.

Test results should identify the property being tested (e.g. structural, fire, resistance to moisture or vapour, acoustic, thermal), and should include test values, levels or classes of performance or pass/fail criteria as appropriate. Results should be identified as either measured results of a physical test or calculated values derived from a test measurement.

The results should identify the test or calculation method used, the date of test and when the validity of the result was most recently reviewed.

NOTE 3 Tests might be international, European or British standards, or industry agreed consensus standards that are publicly accessible.

Any certificate or test report should include details of the certification or test body, its scope of accreditation and any reference number. Information should be provided to enable a third-party to verify the accuracy of the certification information or test report provided by the construction product manufacturer.

NOTE 4 Certification can be undertaken by a recognised certification assessment body accredited against ISO/IEC 17065 by a national accreditation body such as UKAS in the UK.

Results should indicate the relevance of the test data to specific applications or end uses of the product and, if known, identify limitations on the application of the results.

Instructions on the intended use of the product should also be included.

Relevant design standards which apply to the intended use or uses of the product should be identified, for example Eurocodes for structural design or fire safety related codes of practice.

8.2 Relevant, reliable and consistent product information

Construction product manufacturers should define and record the process for the creation of construction product information. All information about a product should be accurate, accessible, transparent, up-to-date, useful, comprehensive, consistent and unambiguous.

The process should include procedures to control the initial creation, senior management assessment and approval, subsequent updating and version information and for periodic review and reapproval.

The process should include procedures to manage, assess and approve changes to construction product information and to inform third-parties and update relevant third-party contributions to product information.

NOTE One way in which construction product manufacturers can demonstrate that their product information is clear, accurate, accessible, up-to-date and unambiguous is through the Code for Construction Product Information[3]. Some clients and contracting organisations might require suppliers to subscribe to the Code.

8.3 Information relating to safety in construction, installation and use

Construction product information should include clear, easily accessible information about safe transport, handling, construction or installation, operation, maintenance, replacement and disposal of the product throughout its intended life span.

Information about transport and handling should cover all activities to transfer the product from the manufacturing site to the installation location. It should cover manual and mechanical handling requirements, including lifting arrangements, and safe storage and transport at all points between the manufacturing site and installation location, so as to maintain the stated performance of the product.

Information about the installation of the product into a building or constructed asset, whether permanent or temporary, should be accurate, accessible, transparent, up-to-date, useful, comprehensive, consistent and unambiguous and include:

a) safe installation of and access to the product;

b) safe interfaces with other products, including what is known about interfacing with other products and whether there are other products with which the product in question should not interface;

c) how to install the product to achieve tested performance in use;

d) specialist equipment and tools that could be required to install the product;

e) specific competences required for safe installation, testing, commissioning or maintenance of the product;

f) specific manufacturer requirements relating to installation for the purpose of maintaining warranties, guarantees, insurance or statutory rights relating to the installed product;

g) inspection, testing, commissioning, and record keeping requirements relating to the installed product;

h) sequencing of works where this could have an impact on product performance or safety; and

i) any legal requirements, constraints or conditions relating to installation, commissioning, use, maintenance or replacement of the product.

[3] Available at https://www.cpicode.org.uk/.

The construction product manufacturer should provide information about the product to allow it to be tested, commissioned or set to work safely where that is required.

The construction product manufacturer should provide information about any requirements relating to safe use and maintenance of the construction product in service. This should be separate from other information and in a relevant format for those who use and maintain the product in service, who are a different group of people.

8.4 Information relating to redress for failure of the product

Construction product manufacturers should provide information about any warranties, guarantees or statutory rights that relate to the product using plain language.

Any conditions that relate to any warranties, guarantees or statutory rights that relate to the product should be described using plain language.

9 Process for receiving and responding to market feedback

Manufacturers should establish a process for recording and investigating reports of incidents and defects involving failure of a construction product.

Users of construction products should be enabled to submit reports on incidents involving the product by all of the following channels:

a) telephone;

b) email;

c) post; or

d) online.

The process should include the following items as appropriate to the product reported to have failed and proportionate to the level of risk associated with the reported failure:

1) make full details of how to report incidents available on all product information and on the manufacturer or economic operator’s website, and detail key information to include in the report, such as product identification, serial numbers, date and source of purchase or supply;

2) provide confirmation from the manufacturer that the report has been received and is being acted on;

3) record the details of the incident, the product(s) involved and details of the use or application of the product;

4) where possible and appropriate obtain the product involved in the reported incident for examination and testing;

5) assign competent staff to investigate the reported incident or defect;

6) where appropriate, visit the site of the reported failure to obtain further details of the reported failure and the circumstances in which it occurred and to establish whether the product was installed in accordance with the manufacturer’s instructions;

7) where the product was installed contrary to the manufacturer’s instructions, investigate the reasons for the incorrect installation and assess the likelihood of incorrect installation occurring on other sites or in other instances;

8) record details of actions taken to investigate the incident, the findings of the investigation and any further testing undertaken and the actions taken in response to the incident;

9) maintain a record of incident reports including details of the incident, of any site visit and further testing, the investigation findings and the actions taken as a result;

10) check for potential trends from cumulative incident reports;

11) where appropriate, provide regulators or competent authorities with occurrence reports; and

12) provide details of the incident and investigation to stakeholders as required.

NOTE 1 Where the product has third-party certification it might be a condition of the certification that failures are notified to the certification body. Some clients might require suppliers to inform them of incidents which have possible implications for the safety of buildings or constructed assets.

Where the investigation identifies a risk of harm or potential harm not previously identified, the manufacturer should undertake a risk assessment for that harm or potential harm.

Where the risk assessment concludes that corrective action is required to reduce the risk of harm or potential harm from the use of the product, the manufacturer should identify the appropriate corrective measures to reduce the future risk of harm or potential harm.

NOTE 2 Corrective actions might include:

- *replacing the product in its application, or replacements of components where possible;*
- *repairing or rebuilding the building or constructed asset that incorporated the product;*
- *removing the product from the marketplace;*
- *scrapping the product; and*
- *conducting a product recall.*

Investigations of reports of product incidents should:

i) identify the root cause for the defect that triggered the report;

ii) determine the most likely reason for it occurring and where responsibility might fall;

NOTE 3 It might be found that the product had been substituted without appropriate oversight or that the product which failed was not the product specified in the design. Such instances are not generally the responsibility of the product manufacturer

iii) identify and implement corrective actions to eliminate or reduce the reoccurrence of the defect;

NOTE 4 Depending on the level of risk, this can be accomplished by redesign of the product to remove the potential harm or by informing users of the potential harm and of appropriate measures to reduce the risk of that potential harm as low as reasonably practicable. It could also require amendments to product information including to the intended uses of the product or installation instructions.

iv) identify whether the defect is common to other products and, if so, what similar corrective actions require implementation; and

v) assess and test the corrective actions to demonstrate that they achieve the desired goal of reducing the potential for the defect to reoccur.

As far as reasonably practicable, the various steps in the investigation process should be carried out in parallel, rather than sequentially, in order to reduce the time needed to reach a decision on the product's potential to create harm and to implement corrective actions.

The process of continuous improvement of the product should be informed by user feedback and be a part of the factory production control and safety management processes of the manufacturer.

Manufacturers should adopt a process for actively seeking to learn about how the product is designed, installed and used in buildings and constructed assets and learning how the product performs in practice throughout its intended life span. This should inform the continuous improvement process.

*NOTE 5 Further guidance on product incident investigation is given in ISO 10377:2023, **B.3**.*

NOTE 6 There are requirements in the Construction Products Regulations ([1] to [5]) for manufacturers to inform the regulator immediately in the case of noncompliance where the product presents a risk, giving details, in particular, of the noncompliance and of any corrective measures taken.

10 Product recall processes

Where a manufacturer identifies or becomes aware of a significant safety failure of a product which could cause serious injury or possibly death and that affects or has the potential to affect products already supplied to the market, they should make users of the product aware of the failure, its possible cause or causes, the possible consequences and any remedial action that the manufacturer proposes.

Manufacturers should assess recommendations for action to reduce the likelihood of the failure recurring.

NOTE 1 Where a failure has been reported to the Regulator then there might be specific requirements relating to recall and making the market aware of the failure.

NOTE 2 PAS 7100:2022 and ISO 10393:2013 provide practical guidance on consumer product recalls. The provisions might also be applicable to other sectors and offer guidance to construction product manufacturers on appropriate steps to be taken.

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