



Innovative products

Technical document

Issue: 08 September 2020 | Version 1.2



Contents

1.0	Scope	3
2.0	Definitions and Abbreviations	4
3.0	Requirements	5
3.1	Strength and stability	5
3.2	Behaviour in relation to fire	5
3.3	Resistance to moisture	5
3.4	Safety in use	5
3.5	Resistance to the passage of sound	6
3.6	Energy efficiency	6
3.7	Aspects of durability, site installation and identification	6
3.7.1	Durability	6
3.7.2	Site installation	6
3.7.3	Identification	6
3.8	Quality of finish	6
4.0	Demonstration of performance	7
5.0	Evaluation of conformity	8
6.0	Certificate issue and publication and removal of certificate	9
Appendix A: Typical format and contents of a System Manual		10
Appendix B: Standard form of the NHBC Accepts Certificate		11
Appendix C: Example control plan		13

1.0 Scope

NHBC Accepts provides acceptance, in writing, that a construction system or product can meet NHBC Standards. NHBC Services Limited carries out a review of the system or product and, if deemed satisfactory, will provide a Certificate to the System or Product Owner, allowing use of the NHBC Accepts logo and publish the acceptance on a website.

Innovative products, components or systems used to form the sub-structure, superstructure and building envelope are reviewed in line with NHBC Accepts Technical Document for Innovative Products. Larger scale building systems, typically volumetric units or panelised assemblies, are reviewed in line with NHBC Accepts Technical Document for Prefabricated Building Units.

This document describes the requirements and scope of review for Innovative Products. Innovative Products must meet NHBC requirements, typically demonstrated through independent assessment by a technical approvals authority (such approvals authority accepted by NHBC in its absolute discretion). Where design follows established principles, it can be reviewed as set out in this document.

The process

The Product Owner will provide a System Manual that describes the Innovative Product, setting out the scope and limitations for its use, the declared performance of the Product and evidence to support the declared performance.

The System Manual for most Innovative Products comprises certification by an appropriate independent technical approvals authority accepted by NHBC. Where the certification does not encompass the full scope of the Product, a System Manual is required as detailed in **Appendix A**.

This Service requires that the Product Owner and the Innovative Product comply with the criteria set by NHBC Services Limited as detailed within this document. The Service is intended solely to provide confidence that an Innovative Product can meet NHBC Standards and is not intended as evidence of performance for any other purpose.

2.0 Definitions and Abbreviations

The following definitions and abbreviations are used throughout the document in addition to those shown in the relevant standards.

Certificate

Certificate issued by NHBC Services Ltd stating that relying on the information provided by the Product Owner, the Innovative Product is expected to meet the requirements of NHBC Standards.

Innovative Product (or Product)

A non-conventional construction product, component or system, used to form the superstructure, substructure or envelope of a home.

Innovative Product Owner (or Product Owner)

The party responsible for the design and manufacture of the Innovative Product.

NHBC Standards

The NHBC standards (as amended from time to time) that incorporate the Technical Requirements. The latest copy can be found on the NHBC website www.nhbc.co.uk.

Service

The NHBC Accepts Service, being an appraisal of Innovative Products against the performance requirements as set out in this document.

System Manual

Detailed technical information on the Innovative Product, compiled by the Product Owner. The System Manual comprises all the information against which the Service is carried out. It is a comprehensive document that describes the Product, the declared performance of the Product and evidence to support the declared performance.

Technical Requirements

The technical requirements for the design and construction of homes acceptable to National House-Building Council that must be met by the builder as described in the NHBC Standards.

3.0 Requirements

The Innovative Product shall, comply with the Technical requirements and all relevant performance requirements of NHBC Standards and national building regulations. They should also satisfy all applicable requirements as detailed in sections 3.1 to 3.8 (inclusive) of this document.

3.1 Strength and stability

Innovative Products that form part of the load-bearing structure of a building shall contribute to the provision of adequate support of the structure, safely transferring to the ground the loadings that are liable to act on it during construction and use.

In addition, the Innovative Product shall have sufficient inherent strength to withstand the loadings that it will experience during manufacture, transportation and installation.

3.2 Behaviour in relation to fire

Innovative Products shall, in accordance with national building regulations applicable to the Products in their intended end use:

- Have the appropriate reaction to fire and adequate fire resistance in relation to their structural function and their location within the building.
- Provide where required, an appropriate level of insulation from the effects of heat generated in a fire.
- Prevent or limit as necessary, the spread of fire and smoke, across a surface or within the space in the building.

3.3 Resistance to moisture

Innovative Products shall, as appropriate to their intended use, provide adequate protection from the damaging effects of moisture; on the fabric, finishes and contents of the building, as well as on the health and hygiene of the building occupants. The primary sources of moisture that should be considered are:

- Precipitation and melting snow acting on the exterior surfaces.
- Dampness and flooding arising from the ground below and around the structure.
- Condensation of water vapour within the external fabric or inside the building.

3.4 Safety in use

The health and safety of the users of the building should not be compromised by the incorporation of Innovative Products into the building. Dangers that could arise from the use of these Products shall be identified and managed to eliminate the risks to people in and around the building.

3.5 Resistance to the passage of sound

Innovative Products shall, when it is applicable to the intended use of the building, limit the passage of adverse noise between spaces and from outside.

3.6 Energy efficiency

Innovative Products shall, where required, limit the passage of heat out of and into the inhabited space.

3.7 Aspects of durability, site installation and identification

3.7.1 Durability

Unless specifically agreed otherwise in writing with NHBC, Innovative Products used in the structure of a home shall have a service life of not less than 60 years. Products that are not integral to the structure may have a lesser durability, typically at least 20 years and require planned maintenance or replacement during that period.

3.7.2 Site installation

Clear instructions for how the Innovative Products are used or installed in the works shall be provided by the Product Owner. A copy of the Product Owner's installation manual shall be available on all construction sites where the Product is used.

3.7.3 Identification

The materials used in Innovative Products shall be identifiable in relation to those properties that affect the ability of the Product to meet NHBC Standards.

3.8 Quality of finish

Where appropriate, products shall comply with performance requirements as set out in Chapter 9 of the NHBC Standards.

4.0 Demonstration of performance

The proposed performance of the Innovative Product is set out by the Product Owner in the System Manual, explaining the proposed scope and limitations on its use. The System Manual will include details of how all the relevant Technical Requirements have been met.

The information supplied by the Product Owner will depend on the type, function and form of construction of the Innovative Products. Typically, this comprises:

- Scope and limitations of use of the Product
- Specification of materials
- Notional construction details
- Supporting evidence to demonstrate performance.

The performance of the Product and how it is incorporated into a home, is demonstrated on the basis of the relevant industry standards for the Product or as assessed by an independent technical approvals authority in line with NHBC Standards, Requirement R3. The following methods are acceptable:

- i. Performance in accordance with standards set by NHBC; or
- ii. where no NHBC standard is set, compliance with the relevant British Standard or equivalent European Technical Specification approved by a Committee for Standardisation, provided they are used in accordance with the relevant Code of Practice; or
- iii. compliance with standards not lower than those defined in a relevant British Standard specification or equivalent, provided their use is accepted by NHBC; or
- iv. satisfactory assessment by an appropriate independent technical approvals' authority accepted by NHBC (refer to NHBC Technical Guidance 2.1/01 "Independent Technical Approvals Authorities/ Bodies Acceptable to NHBC"); or
- v. use of materials and products in accordance with well-established satisfactory custom and practice, provided that such custom and practice is acceptable to NHBC

Where design follows established principles and where agreed with NHBC, the performance requirements of the Product can be demonstrated by calculation or testing.

5.0 Evaluation of conformity

Innovative Products may be manufactured using a wide variety of materials and design approaches. It is therefore not possible to prescribe exactly the actions to be undertaken by the Innovative Product Owner for Factory Production Controls (FPC) in the evaluation of conformity.

Evaluation of conformity is determined in one of three ways.

i. Products covered by a harmonised standard

Products that are covered by a harmonised European Standard must be manufactured in accordance with the relevant standard. Evaluation of conformity is defined within the relevant product Standards.

ii. Products wholly assessed by an independent technical approvals authority

Evaluation of conformity is based on the review of factory production controls by a technical approvals authority where review of the factory production controls is acceptable to NHBC.

iii. Products not wholly assessed by a third party

Where the Product is only partly assessed by a third party, evaluation of conformity is demonstrated by a control plan (such example control plan set out in Appendix C) and audited Quality Management System. The Product Owner shall create a Control Plan to ensure, by direct or indirect methods, that the product specification remains unchanged from that described in the System Manual, allowing for normal tolerances on material properties and manufacturing processes and that the performance of the Product is consistent with the System Manual.

The Product Owner's Quality Management System (QMS) will be certified by a UKAS-accredited, independent certification body against the requirement of ISO 9001:2015.

The Product Owner will demonstrate that the certified QMS includes:

- The Control Plan for FPC including, where appropriate, hold points & evidence of inspection, testing & commissioning
- Clarity on the controls between design and fabrication to verify that the Products manufactured meet the design specification
- Traceability of all components used in the Products
- Identification of proposed site for the Products under production
- A procedure for identifying non-conformities, their cause, and implementing actions to prevent recurrence
- A procedure for dealing with non-conforming products which prevent them from being delivered

6.0 Certificate issue and publication and removal of certificate

The scope of compliance achieved for each Innovative Product shall be indicated on the Certificate awarded to the Innovative Product Owner, as well as their entry on the NHBC Accepts web pages.

The standard form of the Certificate is reproduced in **Appendix B** of this document.

The terms of use of the Certificate and NHBC Accepts logo are set out in the terms and conditions that accompany the engagement letter with the Innovative Product Owner.

Appendix A: Typical format and contents of a System Manual

Cover page(s)	<ul style="list-style-type: none"> ■ Product Owner name ■ Product name ■ Document reference/ revision number ■ Issue date ■ Document owner ■ Document status
Revision history	Issue reference/ issue date/ recipient if applicable/ any notes
Contents	<ul style="list-style-type: none"> ■ Reference codes e.g. numbers/ letters or combination ■ Section headings and subsections ■ Page numbers
Scope and limitations	<ol style="list-style-type: none"> a. Description of the innovative product, component or system and the scope of offsite manufactured elements b. Intended use and any limits of application or exclusions (geographic/ environmental, building height, dimensions, building type etc.) c. Confirmation of the parties (preferably named individuals), who have responsibility for design and coordination of the Product, certification of the Product quality assurance and who has overall responsibility for the delivery of the homes
Standard detail drawings	Include a schedule of the drawings provided as standard details. The details should, as applicable, convey weathertightness, interface with other elements, buildability, structural load path, thermal efficiency and performance in the event of fire
Material specifications	Specifications and third-party certificates, for all relevant key materials that are critical to the performance of the Product. Third party certificates shall either be CE Marked or certified by an independent certification body belonging to the European cooperation for Accreditation (EA)
Evidence of performance where relevant to the Product	<ol style="list-style-type: none"> a. Strength and stability b. Behaviour in relation to fire c. Resistance to moisture d. Safety in use e. Resistance to the passage of sound f. Energy efficiency g. Aspects of durability, site installation and identification h. Quality of finish i. Factory Production Control Manual to include: <ul style="list-style-type: none"> ■ Inspection and test plan, setting out the scope and frequency of inspection and testing/witnessing of critical materials and processes ■ Explanation of the controls between design and manufacture to demonstrate that the accepted design is being produced ■ Process flow chart of activities, including change control mechanism ■ Process for identifying and acting on non-conformities - both remediation and measures to prevent recurrence ■ Hold points and evidence of inspection ■ Traceability of all materials used in the Product ■ Identification of the proposed site, where the Product is manufactured for a specific project

Innovative products



Acceptance certificate

Acceptance date:	Date
Valid until date:	Date
System Acceptance number:	NNNN - PPP/20XX
Issue:	Issue no
Innovative Product Owner:	Name Address
Innovative Product name:	System name
Generic form:	Generic form e.g. Volumetric timber / closed panel steel frame

NHBC Services Limited has reviewed the following information related to the Innovative Product supplied by the Innovative Product Owner:

- System Manual ref no. and title.

Relying on the information provided by the Innovative Product Owner, NHBC Services Limited considers that the Innovative Product can meet NHBC Standards.

Additional requirements must be met in order for a new home to qualify for Buildmark cover. Buildmark cover for new homes will only be issued to Builders or Developers in accordance with the latest version of the NHBC Rules (a copy of which can be found at www.nhbc.co.uk).

Issued by:

Innovation Manager
NHBC Services Ltd

Description, Scope and intended use

Innovative products



Extent of review for NHBC Warranty on NHBC Registered Sites

NHBC Services Limited has undertaken a technical review of the System Manual as set out in line with the NHBC Accepts Technical Document for Innovative Products.

The NHBC Accepts Service is intended solely to provide confidence that the Innovative Product meets NHBC Standards and is not intended as evidence of performance for any other purpose. Appraisal of the Innovative Products against building regulations is not carried out as part of this Service.

Exclusions and Limitations

This Acceptance Certificate is made out solely to the System Owner. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the System Owner arising out of, or in connection with, this Acceptance Certificate.

Exclusions and limitations are set out in the System Manual. Additional considerations in the use of the Innovative Product include:

Appendix C: Example control plan

Example control plan for the manufacture of Prefabricated Building Units

Subject/type of control	Test or control methods	Criteria, if any	Minimum number of samples	Minimum frequency of control
Properties of structural components				
Structural profiles, framework etc	See prEN 1090 -			
Structural connections	Documented in-house method	As defined in national specifications	1	As defined in national specifications
Properties of core/insulation material				
Formulation	-	Supplier's declaration	-	Every delivery
Density (in situ foams only)	Documented in-house method	-	3	1 every shift
Properties of face materials				
Material specification		Supplier's declaration	-	Every delivery
Thickness	Suitably calibrated instruments	Conformity with ETA specification	3	Every delivery
Tensile strength	Documented in-house method			
Properties of adhesives/adhesive joints (where relevant)				
Coverage (spread)	Documented in-house method	Manufacturer's declaration	-	Continuously
Density or viscosity	EN 542 or EN 12092	Manufacturer's declaration	-	1 every shift
Workshop conditions e.g. temperature	Suitably calibrated instruments	In accordance with adhesive supplier's recommendations	-	Continuously
Tensile strength of bonded joint (after curing)	Documented in-house method	Manufacturer's declaration	-	1 every shift
Properties of panels				
Dimensions - thickness, height, width, squareness and flatness as relevant	Suitably calibrated instruments	Conformity with System Manual and approved project-specific design	1	1 every Unit
Compressive and tensile strength	Documented in-house method		3	1 every shift or change of Unit
Shear strength	Documented in-house method		3	1 every shift or change of Unit
Properties of assembled Unit				
Sealing of joints	Documented in-house method	Visual check	3	Every Unit
Correct operation of doors and windows	Documented in-house method	Visual check	1	Every Unit
Installation of cavity barriers and fire stops	Documented in-house method	Visual check	1	Every component
Lapping of membranes (VCL and breather membrane)	Documented in-house method	Visual check	1	Every Unit
Pressure testing of plumbing and services	Documented in-house method	Visual check	1	Every Unit
Quality of finishes	Documented in-house method	Visual check	1	Every Unit