

A Guide to achieving Mandatory Compliance for the manufacture of Fire-Resistant Insulating Glass Units

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Introduction

This industry guidance document, produced by the Glass and Glazing Federation’s Insulating Glass Manufacturers and Fire-Resistant Glazing Groups, is intended to provide industry guidance to Insulating Glass Unit (IGU) manufacturers claiming Safety in the case of fire - Resistance to fire as an Essential Characteristic (EC) of an IGU being placed on the European Market.

Resistance to fire is a life safety characteristic and is subject to, under the Construction Products Regulations (CPR), the IGU being tested by a Notified Body (NB) in the glazed assembly into which it is intended to be used and for the IGU manufacturer to be third party certified by a Notified Product Certification Body (NPCB).

IGU manufacturers must be aware that a level of Resistance to fire achieved in one assembly (design and material) may not be the same as that achieved in an assembly of a different design or manufactured from different materials.

Although this guidance describes the process to enable approval of the IGU manufacturer to place IGUs with a Resistance to fire on the European market, the IGU must also meet the other requirements, including durability, for an IGU as detailed in the harmonised European Norm (hEN)

EN 1279-5:2018 – Glass in buildings – Insulating glass units –

Product standard. These durability requirements are based on test evidence to: -

EN 1279-2:2018 – Long term test method and requirements for moisture penetration

EN 1279-3:2018 (if applicable) – Long term test method and requirements for gas leakage rate and for gas concentration tolerances and evidence supplied by edge seal component suppliers to: -

EN 1279-4:2018 – Glass in buildings – Insulating glass units – Method of test for the physical attributes of edge seal components and inserts.

1. Scope

This guidance document is intended to provide guidance to IGU manufacturers who produce IGUs for incorporation into fire-resistant glazed assemblies, including screens, windows, doorsets and roof windows.

The guidance will describe the legal requirements based on the REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL¹, which came into effect in the UK on 1st July 2013 and is known as the Construction Products Regulations (CPR). Compliance to the CPR is required for any construction product that is within the scope of a hEN, in the case of IGUs, EN 1279-5:2018 – Glass in buildings – Insulating glass units – Product standard is the applicable hEN.

Manufacturers of fire-resistant glass are required, under the CPR, to declare a level of Safety in the case of fire - Resistance to fire performance on the Declaration of Performance (DoP) when placing the glass on the European or UK market. This declared Resistance to fire performance is based on test results on a single pane of the glass and does not mean, that by incorporating a single pane of that glass in an IGU, the IGU also has the same level of fire resistance, other IGU components such as spacer bar, sealants and counter pane also affect the performance of the IGU. When incorporating a fire-resistant glass in an IGU, there must also be test evidence to demonstrate the level of Resistance to fire that may be claimed for the IGU. This means that: -



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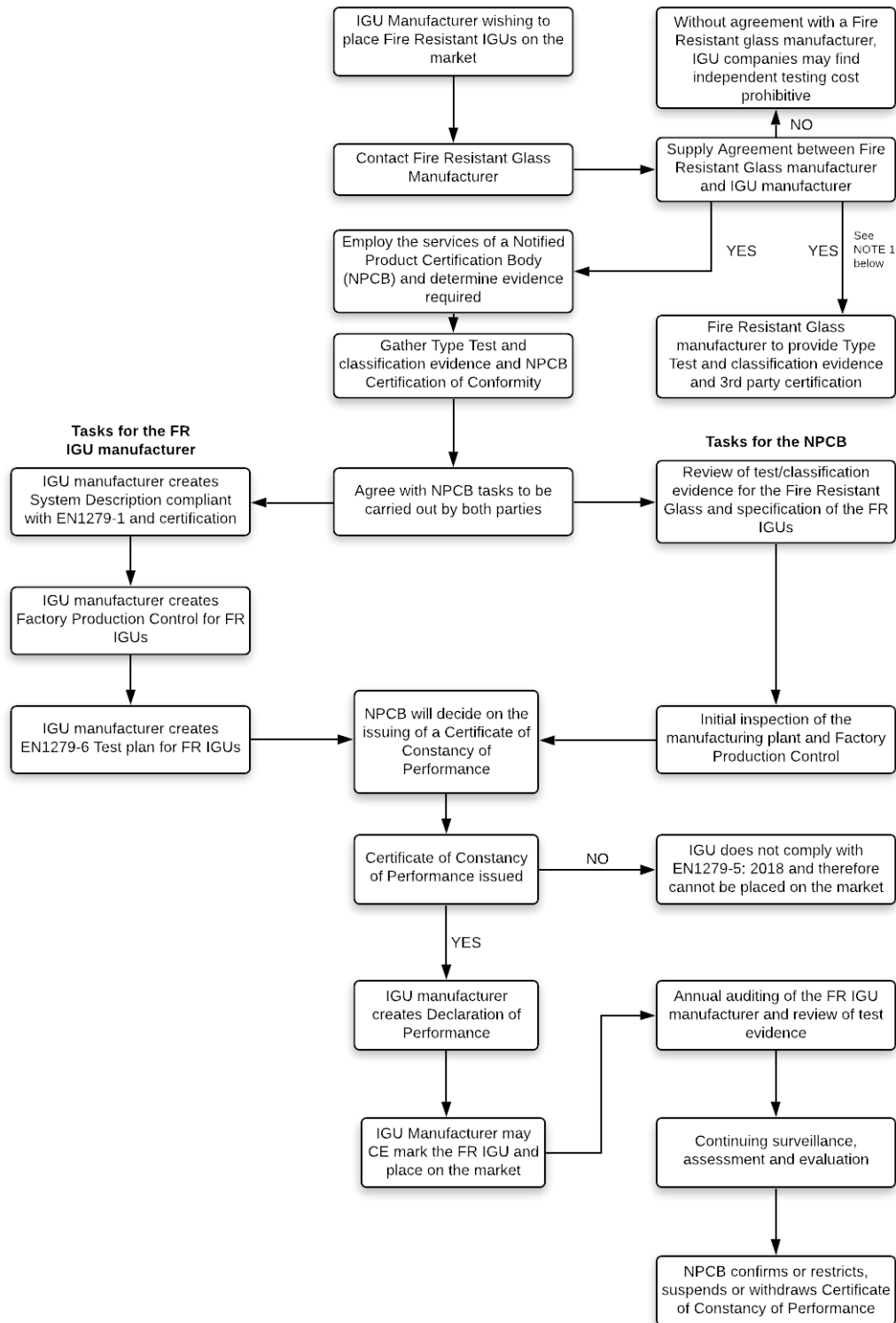
NOTE 1: By substituting one of the panes of an IGU with a glass with a declared fire-resistance performance, does not result in the IGU having a fire-resistance performance equivalent to that of the fire-resistant glass used. The IGU MUST have evidence when installed in a fire-resistant assembly (screen, doorset etc.) and be classified in accordance with 'EN 13501-2:2016 - Fire classification of construction products and building elements. Classification using data from fire resistance tests, excluding ventilation services'.

Many of the suppliers of fire-resistant glass have a library of test and classification reports, all of which are third party certificated by a NPCB and, provided the correct contractual arrangements are in place between the holder of the test evidence/ classification and the IGU manufacturer are in place, the IGU manufacturer will be able to use that evidence when having their own products certified by a NPCB without further testing.

¹ The CPR may be amended by the use of Delegated Acts and these should also be considered when manufacturers are complying with the CPR.

2. Flowchart of requirements when placing Fire-Resistant IGUs on the market

Fire-Resistant Insulating Glass Unit Manufacturer using cascaded Type Test Evidence from a Fire-Resistant Glass Manufacturer



NOTE 1: Some fire-resistant glass manufacturers will only provide test evidence and certification details to Notified Product

3. The requirements on the CPR and hENs

The CPR is applicable to all construction products in scope of a hEN when being placed on the European market. The primary purpose of the CPR is to ensure that all products placed on the European market, where the manufacturer is claiming a level of performance for a range of performance characteristics, referred to as Essential Characteristics (ECs), are determined by using the same test and classification standards throughout the EU and therefore international barriers to trade are removed. All test evidence for these ECs must be produced by a NB test facility and where required, classified, based on the classification standard for that characteristic. Certain ECs need to be certified by a Notified Product Certification Body (NPCB), this is effectively a form of Third Party Product Certification although not formally.

In accordance with the CPR, where a product is within the scope of a hEN, manufacturers must produce a DoP and this must contain a performance declaration of at least one EC and any other EC for which a performance is being claimed. Performance of ECs that are not being claimed may be declared as No Performance Determined (NPD). In the case of products manufactured outside of the EU, these must also be tested by a NB and, if necessary certified by a NPCB. In addition to a DoP, the CPR requires products to be CE marked (labelled) as described in the CPR and its subsequent Delegated Acts.

A hEN can be identified by the title of the standard, originally called Evaluation of Conformity but as they are revised, this is being changed to Product Standard². All hENs include an ANNEX ZA and this Annex relates specifically to the requirements of the CPR. It contains a list of ECs whose performance may be declared, each EC has an Attestation of Conformity and Verification of Constancy of Performance (AVCP) System attached to it (see section 3).

4. Attestation of Conformity and Verification of Constancy of Performance (AVCP)

Prior to the introduction of the CPR on 1st July 2013, the Construction Products Directive (CPD) was in force but the UK, along with a few other EU member states Governments, did not introduce the requirements of the CPD into National law. All hENs at this stage were titled 'Evaluation of Conformity' but since the introduction of the CPR, their titles have been or will be changed to 'Product Standard' when they are next revised and republished.

The declarations made by manufacturers under the CPD was called a 'Declaration of Conformity' (DoC) but this changed when the CPR was enforced and is now referred to as a DoP.

Under the CPR, all the construction products ECs will be

allocated an AVCP System Number and in the case of glazing products, the AVCP systems will be one of the following: -

- (i) System 4 – applies to those ECs whose performance may be declared by the manufacturer according to the standard and do not require the involvement of either NBs or NPCBs.
- (ii) System 3 – applies to those ECs that are not considered to be a life safety characteristics and do not require the use of a NPCB but do require the characteristic to be tested³ and classified by a NB (test facility).
- (iii) System 1 – applies to those characteristics considered to be associated with life safety, in the case of IGUs these are fire-resistance, anti-bullet and anti-explosion. When an EC being claimed is categorised as AVCP System 1 in Annex ZA, Table ZA.2, the tasks for the IGU manufacturer and NPCB are shown in Table ZA.2.1 - Assignment of AVCP tasks for IGUs under system.

5. Systems of Assessment and Verification of Constancy of Performance (AVCP)

Taking into account the AVCP System 1 applicable to the Essential Characteristic, Safety in the case of fire – Resistance to fire, as defined in the Product Standard and the intended use, the following tasks are to be undertaken by the IGU manufacturer and the NPCB, for the AVCP of the product.

Tasks for manufacturer: -

Factory production control (FPC) as detailed in EN 1279-6:2018

Further testing of samples taken at the manufacturing plant by the manufacturer in accordance with the prescribed test plan.

Following completion of the requirements by the NPCB, a Certificate of Constancy of Performance will be issued by them to the IGU manufacturer and the IGU manufacturer shall: -

Determine the product-type on the basis of the AVCP carried out under System 1 by the NPCB

Draw up the DoP that includes a declaration against the EC, 'Safety in case of fire – Resistance to fire'

Create a CE Mark to be attached to or supplied with fire-resistant IGUs delivered to their clients

Tasks for notified product certification body: -

An assessment of product performance for Resistance to fire (based on evidence in accordance with EN 1364 or EN 1634 and classification in accordance with EN 13501-2)

Initial inspection of the manufacturing site and FPC

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Continuing surveillance, assessment and evaluation of FPC for 'Safety in case of fire – Resistance to fire'

The NPCB are required to provide 'Continuing surveillance, assessment and evaluation of FPC for resistance to fire' and shall decide on the issuing, restriction, suspension or withdrawal of the Certificate of Constancy of Performance for the fire-resistant IGU on the basis of the outcome of their on-going audit requirements.

NOTE 2: The above is based on the Commission Delegated Regulation (EU) No 568/2014 dated 18 February 2014.

6. Guidance on the requirements:

6.1 IGU manufacturers wishing to claim 'Safety in the case of fire – Resistance to fire' will: -

6.1.1 Employ the services of a NPCB

6.1.2 Agree with NPCB evidence required by them

6.1.3 Gather evidence (test and classification) from suppliers of fire-resistant glass

6.1.4 Agree with NPCB tasks to be carried out by manufacturer and NPCB

6.2 The IGU manufacturer will: -

6.2.1 Produce an FPC for the manufacture of fire-resistant IGUs see 6.4.5 & 6.4.6

6.2.2 Create a test plan for fire-resistant IGUs

6.3 NPCB will: -

6.3.1 Review the fire-resistance test and classification evidence

6.3.2 Carry out an initial inspection of the manufacturing plant

6.3.3 Review the FPC for the manufacture of fire-resistant IGUs

6.3.4 Confirm or otherwise approval of the IGU manufacturer for fire-resistant IGUs

6.3.5 Issue a Certificate of Constancy of Performance to the IGU manufacturer for the production of fire-resistant IGUs

6.3.6 Carry out a review of the IGU manufacturer at agreed time intervals

6.3.6.1 Continuing surveillance, assessment and evaluation of IGU manufacturers FPC

6.3.6.2 NPCB confirms issuing of Certificate of Constancy of Performance: or

6.3.6.3 Restricts, suspend or withdraw Certificate of Constancy of Performance

6.4 IGU manufacturer will: -

6.4.1 Create a DoP including a declaration of Safety in the case of fire – Resistance to fire

6.4.2 Create a CE Mark (label)

6.4.3 Attach or supply a copy of the CE Mark to clients

²A list of NPCB can be obtained from Nando website: http://ec.europa.eu/growth/tools-databases/nando/index.cfm?fuseaction=directive.notifiedbody&sort=country&dir_id=33

³All hENs are being reviewed following the introduction of the CPR and their titles are changing from Evaluation of Conformity to Product Standard.

⁴Testing may be by actual testing, calculation, reference to stated performance levels or tabulated values contained in product standards

NOTE 3: GGF Best Practice for IGU Manufacturers who manufacture IGUs intended for fire resistant applications is to declare a performance in accordance with EN 13501-2: 2016 – NPD is not deemed GGF best practice for these IGUs.