

GGF GUIDANCE

GGF Industry Guidance: Insulating Glass Units (IGUs) - Conforming to the Construction Products Regulation (CPR)

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Background

In 2011 the European Commission published the Construction Products Regulation (CPR) as a replacement for the Construction Products Directive (CPD).

NOTE 1: CPR Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

NOTE 2: CPD The Construction Products Directive (Council Directive 89/106/EEC) Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (89/106/EEC) (OJ L40, 11.2.1989, p.12).

The CPR became law and was implemented on 1/07/2013. As this was a 'Regulation' it was implemented as written without a member state being allowed to make changes.

This 'Regulation' contained numerous definitions, articles and annexes that covered the whole remit of supplying construction products.

The following are some of the most pertinent:



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i. Chapter I General Provisions

Article 2 Definitions

16. 'making available on the market' means any supply of a construction product for distribution or use on the Union market in the course of a commercial activity, whether in return for payment or free of charge;

ii. Chapter II Declaration of Performance and CE Marking

Article 4 Declaration of performance

1. When a construction product is covered by a harmonised standard or conforms to a European Technical Assessment which has been issued for it, the manufacturer shall draw up a declaration of performance when such a product is placed on the market

2. When a construction product is covered by a harmonised standard or conforms to a European Technical Assessment which has been issued for it, information in any form about its performance in relation to the essential characteristics, as defined in the applicable harmonised technical specification, may be provided only if included and specified in the declaration of performance except where, in accordance with Article 5, no declaration of performance has been drawn up.

3. By drawing up the declaration of performance, the manufacturer shall assume responsibility for the conformity of the construction product with such declared performance. In the absence of objective indications to the contrary, Member States shall presume the declaration of performance drawn up by the manufacturer to be accurate and reliable.

Article 5 Derogations from drawing up a declaration of performance

By way of derogation from Article 4(1) and in the absence of Union or national provisions requiring the declaration of essential characteristics where the construction products are intended to be used, a manufacturer may refrain from drawing up a declaration of performance when placing a construction product covered by a harmonised standard on the market where:

- (a) the construction product is individually manufactured or custom-made in a non-series process in response to a specific order; and installed in a single identified construction work, by a manufacturer who is responsible for the safe incorporation of the product into the construction works, in compliance with the applicable national rules and under the responsibility of those responsible for the safe execution of the construction works designated under the applicable national rules;
- (b) the construction product is manufactured on the construction site for its incorporation in the respective construction works in compliance with the applicable national rules and under the responsibility of those responsible for the safe execution of the construction works designated under the applicable national rules; or
- (c) the construction product is manufactured in a traditional manner or in a manner appropriate to heritage conservation and in a non-industrial process for adequately renovating construction works officially protected as part of a designated environment or because of their special architectural or historic merit, in compliance with the applicable national rules.

This article cannot be used to avoid the preparation of a Declaration of Performance and compliance with a harmonised Product Standard for the following reasons:

- (a) IGUs are manufactured in a series production and therefore this derogation does not apply. Also the IGU manufacturer is not responsible for the incorporation of the IGU into the construction works;
- (b) IGUs are not manufactured on a construction site;
- (c) IGUs are not manufactured in a traditional manner and are not manufactured in a non-industrial process.

iii. Chapter IV Harmonised Technical Specifications

Article 17 Harmonised standards

1. Harmonised standards shall be established by the European standardisation bodies listed in Annex I to Directive 98/34/EC on the basis of requests (hereinafter referred to as 'mandates') issued by the Commission in accordance with Article 6 of that Directive after having consulted the Standing Committee on Construction referred to in Article 64 of this Regulation (hereinafter referred to as 'Standing Committee on Construction').

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5. The Commission shall assess the conformity of harmonised standards established by the European standardisation bodies with the relevant mandates

Without prejudice to Articles 36 to 38, from the date of the end of the coexistence period, the harmonised standard shall be the only means used for drawing up a declaration of performance for a construction product covered by it.

The outcome of these Articles is that a 'construction product' that is being manufactured for use on the European market MUST comply with the applicable/appropriate 'harmonised European Norm (hEN)'.

Therefore for 'insulating glass units' (IGU) this means the following European standard:

- EN 1279: *Glass in building - Insulating glass units - Parts 1 to 6*;
- *Part 1: Generalities, dimensional tolerances and rules for the system description*
- *Part 2: Long term test method and requirements for moisture penetration*
- *Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances*
- *Part 4: Methods of test for the physical attributes of edge seals*
- *Part 5: Evaluation of conformity/Product standard* **This is the hEN.**
- *Part 6: Factory production control and periodic testing*

These parts were published between 2002 and 2005. Part 5 had an amendment in 2010. All parts are undergoing revision 2016-2017, Part 5 being the hEN details the 'requirements' that have to be complied with.

The important clause is **#4.2 Conformity with the definition of insulating glass units**. This states as follows:

Products shall conform to the definition and fulfil the requirements of insulating glass units as defined in EN 1279-1.

EN 1279-1

#5.1 Conformity with definition of insulating glass units

Products intended to belong to the insulating glass system shall conform to the definition of insulating glass units. Durability being ensured by the following:

- the moisture penetration index, the I-value, being satisfied in accordance with EN 1279-2;
- the edge seal strength complying with EN 1279-4;
- the manufacturing process respecting EN 1279-6;
- the recommendations of clause 4.4 and Annex B of prEN 1279-5 being followed;
- and in the case of gas-filled insulating glass units, the requirements of the gas leakage rate according to EN 1279-3 being satisfied.

To understand the requirements we need to check the wording of the clauses, with respect to test specimen preparation, in both EN 1279-2 and EN 1279-3.

EN 1279-2; #5.3

The test specimens shall be representative of the system description (see EN 1279-1) and shall consist of two panes of 4 mm clear float glass in accordance with EN 572-1 and EN 572-2. The length shall be (502 ± 2) mm and the width (352 ± 2) mm. The gap shall be 12 mm, or if not manufactured, a gap as near to 12 mm as possible.

Construction details of the edges and corners shall correspond to the edge and corner details in units supplied to the market.

EN 1279-3; #5.3.1

The test specimens shall consist of two panes of 4mm clear float glass in accordance with EN 572-1 and EN 572-2. The length shall be (502 ± 2) mm and the width (352 ± 2) mm. The gap shall be nominally 12 mm, or if not manufactured, a gap as near to 12 mm as possible. The test specimens shall be representative of the system description as defined in EN 1279-1.

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The important words are as follows:

- GAP 12 mm. Or if not manufactured as near to 12 mm as possible.
- Construction details:
 - Part 2 shall correspond to the edge and corner details in units supplied to the market;
 - Part 3 shall be representative of the system description as defined in EN 1279-1.

When the hEN is examined we find the following:

- **EN 1279-5; #5.2 and 5.2.1 Initial type testing of the product:**

When actual testing is required then the Initial Type Testing (ITT) shall be undertaken on a sample representative of the product taken from direct production or a prototype, any plant and/or line.

1. Modern variations in IGU design

Type (1) Narrow cavity units

This product has become common due to a desire to keep narrow rebate platform widths, especially in 'heritage/conservation' area.

Type (2) Shallow sight lines

This product has become common due to a desire to keep shallow rebate upstands, especially in 'heritage/conservation' area.

2. Initial Type Testing of these product variants

Type (1) According to EN 1279 parts 2, 3 and 5, the test specimens MUST be representative of:

- System description;
- Product supplied to the market.

Type (2) According to EN 1279 parts 2, 3 and 5, the test specimens MUST be representative of:

- System description;
- Product supplied to the market.

3. Detailed considerations:

Type (1) For EN 1279-2 is it possible to introduce sufficient desiccant and/or seal depth? Can these products meet the performance requirements, i.e. I-value?

For EN 1279-3 can sufficient gas be placed into the unit to allow for determination of the gas-loss rate?

[Also will the design of the unit allow it to have the 'thermal transmittance/u-value' that is required by the Building Regulations.]

Type (2) For EN 1279-2 is it possible to introduce sufficient seal depth? Can these products meet the performance requirements, i.e. I-value?

[Also will the shallow rebate height allow for a robust glazing system to be used that will give an economically viable service life?]

For EN 1279-3 can sufficient seal depth be manufactured into the unit to negate a high gas-loss rate?

4. Do the variants comply with the definition of insulating glass units?

This can only be determined by subjecting these products to the ITT as detailed within EN 1279 parts 2 and 3.

The test specimens MUST meet the requirements with respect to compliance with:

- system description; and
- representation of product supplied onto the market.

If they are unable to comply, this will mean one/more of the following:

- product not meeting the 'claimed/declared' performance against the essential characteristics;
- product having a 'short lifetime', i.e. not being durable and not lasting an 'economically viable service life'.