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SPECIAL DRAWN SHEET GLASS

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1 SCOPE OF THE EAD

1.1 Description of the construction product

The products are flat glass panes with different colours, decorative surface phenomena, different sizes and different thicknesses named special drawn sheet glass.

The EAD covers both types of special drawn sheet glass, the basic product as well as products manufactured by further processing of the basic product, i.e., thermally toughened safety glass, heat soaked thermally toughened safety glass, laminated glass and laminated safety glass and insulating glass.

The structure of the harmonised standards for glass products is such that EN 572-9 covers basic products while the other standards mentioned in this EAD (EN 12150-2, EN 14179-2, EN 14449 and EN 1279-5) cover products which have been further processed from such basic products. Those standards are based on the precondition that glass panes according to EN 572-9 are used for the further processing.

Thus, as the basic products are not fully covered by EN 572-9¹, the processed products are also not fully covered by the following harmonized technical specifications: EN 12150-2, EN 14179-2, EN 14449 and EN 1279-5. The chemical composition of the basic glass, the characteristic bending strength and the thickness tolerances deviate from the specifications defined in EN 572-1 and referred to in EN 572-9. Since the harmonized standards EN 12150-2, EN 14179-2, EN 14449 and EN 1279-5, covering the processed products, assume basic products according to EN 572-9 as incoming material, the processed products are deviating as well from those harmonized standards.

If the basic product of special drawn sheet glass is further processed to thermally toughened special drawn sheet safety glass, to heat soaked thermally toughened special drawn sheet safety glass, to laminated special drawn sheet glass and laminated special drawn sheet safety glass and to insulating special drawn sheet glass units, this is done -as far as possible- analogue to EN 12150-2, EN 14179-2, EN 14449 and EN 1279-5.

It shall be stated in the ETA whether the special drawn sheet glass covered by the ETA has been further processed or not and, if relevant, the type of processing shall be indicated.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

1.2 Information on the intended use(s) of the construction product

1.2.1 Intended use(s)

The panes of special drawn sheet glass – the basic product as well as the further processed products – are intended to be used in different applications. First and foremost, it is used for the glazing of historic buildings to achieve a historical correct building appearance, especially for buildings that have been constructed before the float glass process has been invented [before 1955]. They are used for internal (partitions, luminous ceilings, doors) and external (facades, windows) glazing applications.

¹ All undated references to standards or to EADs in this EAD are to be understood as references to the dated versions listed in chapter 4.

The panes of special drawn sheet glass are neither intended to be used in a glazed assembly intended specifically to provide fire resistance nor for fire compartmentation or as anti-bullet or anti-explosion glazing.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the special drawn sheet glass for the intended use of 25 years when installed in the works provided that the special drawn sheet glass is subject to appropriate installation. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works².

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

² The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Tables 2.1.1 to 2.1.5 show how the performances of not further processed special drawn sheet glass, thermally toughened safety glass further processed from special drawn sheet glass, heat soaked thermally toughened safety glass further processed from special drawn sheet glass, laminated glass and laminated safety glass further processed from special drawn sheet glass and insulating glass further processed from special drawn sheet glass are assessed in relation to the essential characteristics.

Table 2.1.1 Essential characteristics of the basic product of not further processed special drawn sheet glass and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance (level, class, description)
Basic Works Requirement 1: Mechanical resistance and stability			
1	Reaction to fire	2.2.1	class
Basic Works Requirement 4: Safety and accessibility in use			
2	Burglar resistance shatter properties and resistance to attack	EN 572-9, 4.2.2.6	class
3	Pendulum body impact resistance: shatter properties (safe breakability) and resistance to impact	EN 572-9, 4.2.2.7	class
4	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	EN 572-9, 4.2.2.8	level
5	Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit	EN 572-9, 4.2.2.9	level
6	Characteristic bending strength	2.2.2	level
Basic Works Requirement 5: Protection against noise			
7	Direct airborne sound reduction	EN 572-9, 4.2.2.10	level
Basic Works Requirement 6: Energy economy and heat retention			
8	Thermal properties	EN 572-9, 4.2.2.11	level
9	Radiation properties: Light transmittance and reflectance	EN 572-9, 4.2.2.12	level
10	Radiation properties: Solar energy characteristics	EN 572-9, 4.2.2.13	level

Table 2.1.2 Essential characteristics of the thermally toughened safety glass further processed from special drawn sheet glass and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	class
Basic Works Requirement 4: Safety and accessibility in use			
2	Burglar resistance: Shatter properties and resistance to attack	EN 12150-2, 4.3.2.6	class
3	Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact	EN 12150-2, 4.3.2.7	class
4	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	EN 12150-2, 4.3.2.8	level
5	Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit	EN 12150-2, 4.3.2.9	level
6	Characteristic bending strength	2.2.2	level
Basic Works Requirement 5: Protection against noise			
7	Direct airborne sound reduction	EN 12150-2, 4.3.2.10	level
Basic Works Requirement 6: Energy economy and heat retention			
8	Thermal properties	EN 12150-2, 4.3.2.11	level
9	Radiation properties: Light transmittance and reflectance	EN 12150-2, 4.3.2.12	level
10	Radiation properties: Solar energy characteristics	EN 12150-2, 4.3.2.13	level

Table 2.1.3 Essential characteristics of the heat soaked thermally toughened safety glass further processed from special drawn sheet glass and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	class
Basic Works Requirement 4: Safety and accessibility in use			
2	Burglar resistance: Shatter properties and resistance to attack	EN 14179-2, 4.3.2.7	class
3	Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact	EN 14179-2, 4.3.2.8	class
4	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	EN 14179-2, 4.3.2.9	level
5	Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit	EN 14179-2, 4.3.2.10	level
6	Characteristic bending strength	2.2.2	level
Basic Works Requirement 5: Protection against noise			
7	Direct airborne sound reduction	EN 14179-2, 4.3.2.11	level
Basic Works Requirement 6: Energy economy and heat retention			
8	Thermal properties	EN 14179-2, 4.3.2.12	level
9	Radiation properties: Light transmittance and reflectance	EN 14179-2, 4.3.2.13	level
10	Radiation properties: Solar energy characteristics	EN 14179-2, 4.3.2.14	level

Table 2.1.4 Essential characteristics of the laminated glass and laminated safety glass further processed from special drawn sheet glass and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	class
Basic Works Requirement 4: Safety and accessibility in use			
2	Burglar resistance: shatter properties and resistance to attack	EN 14449, 4.3.2.6	class
3	Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact	EN 14449, 4.3.2.7	class
4	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	EN 14449, 4.3.2.8	level
5	Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit	EN 14449, 4.3.2.9	level
Basic Works Requirement 5: Protection against noise			
6	Direct airborne sound reduction	EN 14449, 4.3.2.10	level
Basic Works Requirement 6: Energy economy and heat retention			
7	Thermal properties	EN 14449, 4.3.2.11	level
8	Radiation properties: Light transmittance and reflectance	EN 14449, 4.3.2.12	level
9	Radiation properties: Solar energy characteristics	EN 14449, 4.3.2.13	level

Table 2.1.5 Essential characteristics of insulating glass further processed from special drawn sheet glass and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	class
Basic Works Requirement 4: Safety and accessibility in use			
2	Burglar resistance: shatter properties and resistance to attack	EN 1279-5, 4.2.2.7 and 4.2.2.15	class
3	Pendulum body impact resistance: shatter properties (safe breakability) and resistance to impact	EN 1279-5, 4.2.2.8 and 4.2.2.15	class
4	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	EN 1279-5, 4.2.2.9 and 4.2.2.15	level
5	Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit	EN 1279-5, 4.2.2.10 and 4.2.2.15	level
Basic Works Requirement 5: Protection against noise			
6	Direct airborne sound reduction	EN 1279-5, 4.2.2.11 and 4.2.2.15	Level
Basic Works Requirement 6: Energy economy and heat retention			
7	Thermal properties	EN 1279-5, 4.2.2.12 and 4.2.2.15	level
8	Radiation properties: Light transmittance and reflectance	EN 1279-5, 4.2.2.13 and 4.2.2.15	level
9	Solar energy characteristics: Solar direct transmittance, solar direct reflectance and total solar energy transmittance	EN 1279-5, 4.2.2.14 and 4.2.2.15	level

2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessments shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare this performance in the Declaration of Performance.

All types of special drawn sheet glass consist of nearly the same chemical composition. They are distinguished by different decorative surface phenomena. To choose the test specimens the most uneven surfaces of the different special drawn sheet products shall be taken for testing. The results of the assessment achieved this way are valid for the whole range of the products.

Please note that for all further conditions the respective standards as stated in clause 1.1 shall be taken into account.

2.2.1 Reaction to fire

One of the following options shall apply for the assessment of reaction to fire:

- a) The basic special drawn glass sheet as well as products processed from it are considered to satisfy the requirements for performance class A1 of the characteristic reaction to fire in accordance with the Decision 96/603/EC, as amended by Commission Decisions 2000/605/EC and 2003/424/EC, without the need for testing on the basis of it fulfilling the conditions set out in that Decision and its intended use being covered by that Decision.

Therefore, the performance of the product is A1.

- b) If option "a)" doesn't apply, the basic special drawn glass sheet and/or products processed from it shall be assessed according to the method(s) referred to in EN 13501-1 and relevant for the corresponding reaction to fire class. The product shall be classified according to the Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

For conducting the relevant tests and the application of test results, the provisions of Annex A apply.

The obtained reaction fire class shall be stated in the ETA together with those conditions for which the classification is valid.

2.2.2 Characteristic bending strength

2.2.2.1 Purpose of assessment

The performance property "characteristic bending strength" is described with the bending strength generated in the surface of a specimen which is determined as follows.

2.2.2.2 Assessment method

2.2.2.2.1 Basic product

The characteristic bending strength of the basic product "special drawn sheet glass" shall be determined according to EN 1288-5. At least 30 test specimens shall be prepared for each of the relevant types of special drawn sheet glass (e.g., different colours etc. of the basic product). The following criteria for the selection of test specimens are important:

- Chemical composition
- Different surface

- Special coating
- Thickness (test samples with the maximum tolerance level)

A continuous surface deterioration of the specimens by sandblasting is necessary for the testing and statistical evaluation. The degree of the surface deterioration has to be exactly the same for all specimens to compare the results.

The following surface deterioration shall be carried out:

- Sandblast with Carborundum Type 150
- Distance between sample and sandblast machine 200 millimeter
- Pressure of sandblast machine 3,0 bar
- Duration 30 seconds

The test results shall be evaluated statistically (determination of 5 % fractile, confidence level 95 %). The type of special drawn sheet glass (basic product) with the lowest characteristic value is decisive and shall be given in the ETA.

2.2.2.2.2 Thermally toughened safety glass and heat soaked thermally toughened safety glass of special drawn sheet glass

The characteristic bending strength of the thermally toughened safety glass and the heat soaked thermally toughened safety glass made of special drawn sheet glass shall be determined according to EN 1288-3 (four point bending test). The test results shall be evaluated statistically (determination of 5 % fractile, confidence level 95 %).

10 test specimens are required for each representative nominal thickness. The thickness of the test specimens shall respect the lower limit of the thickness tolerance. For the test specimens the type of edge working is arrissed edge and the test specimens shall be heat soaked according to EN 14179-2 before testing. The results are valid for both, for thermally toughened safety glass and for heat soaked thermally toughened safety glass.

2.2.2.3 Expression of results

The characteristic bending strength shall be stated in the ETA.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System(s) of assessment and verification of constancy of performance to be applied

For the product covered by this EAD the applicable European legal act is Commission Decision 2000/245/EC, as amended by Commission Decision 2001/596/EC.

The system is 3 for any use except for uses subject to regulations on reaction to fire or on external fire performance.

For uses subject to regulations on reaction to fire or related to the external fire performance the applicable AVCP systems are 3 or 4, depending on the conditions defined in the said Decision.

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.2.1.

Table 3.2.1 Control plan for the manufacturer; cornerstones for the basic special drawn sheet glass

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Factory production control (FPC) [including testing of samples taken at the factory in accordance with a prescribed test plan]					
1	Glass panes: flatness dimensional stability, surface condition, tolerances, colour	Check of flatness, dimensional stability, surface condition, tolerances, colour	Control plan	Control Plan	continuous
2	Classification of reaction to fire	Control of formula	Control plan	Control Plan	Every batch
3	Bending strength	2.2.2	Control plan	5 samples	Once per week
4	Marking of the special drawn sheet glass	Control plan	Control plan	Control Plan	continuous
5	Documentation of the FPC	Control plan	Control plan	Control Plan	continuous

4 REFERENCE DOCUMENTS

EN 572-1:2012+A1:2016	Glass in building – Basic soda lime silicate glass products – Part 1: Definitions and general physical and mechanical properties
EN 572-9:2004	Glass in building - Basic soda lime silicate glass products - Part 9: Evaluation of conformity/Product standard
EN 1279-5:2018	Glass in building - Insulating glass units - Part 5: Product standard
EN 1288-3:2000	Glass in building - Determination of the bending strength of glass - Part 3: Test with specimen supported at two points (four point bending)
EN 1288-5:2000	Glass in building - Determination of the bending strength of glass - Part 5: Coaxial double ring test on flat specimens with small test surface areas
EN 12150-2:2004	Glass in building - Thermally toughened soda lime silicate safety glass - Part 2: Evaluation of conformity/Product standard
EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests;
EN 13823:2020	Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item
EN 14179-2:2005	Glass in building - Heat soaked thermally toughened soda lime silicate safety glass - Part 2: Evaluation of conformity/Product standard
EN 14449:2005	Glass in building - Laminated glass and laminated safety glass - Evaluation of conformity/Product standard
EN ISO 1182:2020:	Reaction to fire tests for products - Non-combustibility test (ISO 1182:2020)
EN ISO 1716:2018	Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value) (ISO 1716:2018)
EN ISO 11925-2:2020	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2:2020)

ANNEX A: FURTHER PROVISIONS FOR REACTION TO FIRE TESTS AND THE APPLICATION OF TESTS RESULTS OF THESE TESTS

A.1 Tests according to EN ISO 1182

This test method is relevant for determination of classes A1 and A2 according to EN 13501-1.

All substantial components of the basic special drawn glass sheet as well as products processed from it shall be tested except in cases as prescribed below.

Components of the basic special drawn glass sheet or of products processed from it which are made of materials covered by Commission Decision 96/603/EC (as amended by Commission Decisions 2000/605/EC and 2003/424/EC) for materials classified as class A1 without the need for testing, does not need to be tested according to EN ISO 1182.

For linear components (e.g., edge sealings, spacers) or discrete components their total weight (depending on the size of the final glass product and/or their number per glass unit) shall be used to calculate the weight per unit area and thickness of a "virtual" flat layer as basis for the assessment whether they are to be considered as substantial or non-substantial (as defined in EN 13501-1) and need to be tested or not.

Relevant parameters for sampling and preparing the specimens of the components and the application of test results:

- Variations of a product-family (as defined by a certain combination of raw materials and a certain type of production process) => the variation with the highest amount of organic content shall be tested covering all variations of the same product family with lower organic content and
- Density => where relevant, the highest and lowest density shall be tested covering the whole range between those values evaluated.

All tests shall be performed in accordance with the provisions of the test standard.

A.2 Tests according to EN ISO 1716

This test method is relevant for determination of classes A1 and A2 according to EN 13501-1.

All components of the basic special drawn glass sheet or of products processed from it shall be tested except in cases as prescribed below.

Components of the basic special drawn glass sheet or of products processed from it which are made of materials covered by Commission Decision 96/603/EC (as amended by Commission Decisions 2000/605/EC and 2003/424/EC) for materials classified as class A1 without the need for testing, does not need to be tested according to EN ISO 1716. Their PCS value (gross heat of combustion) shall be set as zero for further calculations.

For linear components (e.g., edge sealings, spacers) or discrete components their total weight (depending on the size of the final glass product and/or their number per glass unit) shall be used to calculate the weight per unit area and thickness of a "virtual" flat layer as basis for the assessment whether they are to be considered as substantial or non-substantial (as defined in EN 13501-1) and for the assessment of their relevant PCS value.

Relevant parameters for sampling and preparing the specimens of the components and the application of test results:

- Variations of a product-family (as defined by a certain combination of raw materials and a certain type of production process) => the variation with the highest amount of organic content shall be tested covering all variations of the same product family with lower organic content.

In addition, for calculation of the total PCS value of a non-homogenous product (consisting of several layers / components) the variations of thickness and density of the various components shall be considered to determine the worst case. The result covers all variations between those values of thickness and density of components of the insulating glass unit as investigated within the calculations.

A.3 Tests according to EN 13823 (SBI)

This test method is relevant for determination of classes A2 to D according to EN 13501-1 and in certain cases (as defined in EN 13501-1) for determination of class A1, too.

General:

The specimens consist of a long wing and a wide wing and their size shall be as prescribed in the test standard.

Deviating from the standard specimen configuration as prescribed in the test standard, neither a vertical joint at a distance of 200 mm from the internal corner of the test specimen nor a horizontal joint at a height of 500 mm above the bottom edge of the test specimen shall be considered on the long wing.

The two wings of the test specimen are arranged on the trolley according to EN 13823, figure 2. On the backside there will be arranged a sub-construction made out of vertically directed, linear metal profiles or discrete metal spacing holders. The function of this sub-construction is just to hold the glass against the lower U-profile and the upper stop for preventing the glass panes to fall over. The distance of the backside of the glass product foreseen for testing to the backing board of the SBI test rig is at least 80 mm. The measures for having free ventilation (see chapter EN 13823, clause 5.2.2 a), have to be taken.

When conducting tests in the SBI-test, all components of the final glass product unit have to be included in the test specimens.

Relevant parameters for sampling and preparing the specimens of the components and the application of test result:

- design of the final glass product,
- symmetrical or asymmetrical assembly of the layers of the final glass product,
- type and thickness of the glass used for the external panes,
- type and thickness of intermediate layers and
- type and thickness of external facings or coatings of the glass panes.

Cornerstones for the necessary SBI tests:

a) Symmetrical assembly

a.1) one single test (one specimen) be carried out with a glass which has the thinnest thickness of the external glass panes (per type of glass to be used) and – if relevant – the intermediate layer which shows the maximum thickness and which verified the maximum gross heat of combustion (PCS value) according to EN ISO 1716.

a.2) one single test (one specimen) be carried out with a glass which has the thinnest thickness of the external glass panes (per type of glass to be used) and – if relevant – the intermediate layer which shows the maximum thickness and which verified the maximum gross heat of combustion (PCS value) according to EN ISO 1716 and a possible external coating (e.g., foils, markings or enamels etc.) with the most critical coating to be verified first by determination of the gross heat of combustion (PCS value) according to EN ISO 1716.

Inorganic coatings don't need to be considered for testing.

a.3) Other two tests are to be carried out with the most critical specimen variant found from tests "a.1)" and "a.2)", so that three test results on hand for this variant will be the basis for the classification of the final glass product.

The result with the thinnest thickness of the external glass also covers the use of higher glass thickness.

The use of an intermediate layer with the highest thickness and the most critical PCS value includes the use of intermediate layers with the same or lower thickness and/or a lower PCS value.

b) Symmetrical assembly with multi-layer intermediate layers

Tests in accordance with "a)" shall be carried out with the maximum number of intermediate layers, testing both the highest and lowest thickness of the layers.

c) Asymmetrical assembly

c.1) asymmetrical assembly with single-layer intermediate layer

For each side of the final glass product one single test (one specimen) shall be performed according to "a.1)"

For the variant, which shows the more critical test result, tests following the provisions of "'a.2)" and "a.3)" shall be carried out.

c.2) asymmetrical assembly with multi-layer intermediate layer

Tests shall be done following the provisions of "c.1) with the maximum number of intermediate layers.

Using the above-mentioned rules, it is possible to make a grouping for getting different classifications of the product-families depending on

- Thickness, type, PCS value and number of intermediate layers,
- Type and thickness of the glass panes and
- Type of the external coating.

A.4 Tests according to EN ISO 11925-2

This test method is relevant for determination of classes B to F according to EN 13501-1.

The following parameters are to be considered within testing:

- Design of the final glass product,
- thickness of the glass used for the external panes,
- type and thickness of intermediate layers,
- type and thickness of external facings or coatings of the glass panes and
- type of spacers and edge sealings.

The specimens shall be prepared with the thinnest thickness of the external glass pane as well as – if relevant – with maximum thickness of the intermediate layer having the highest PCS value and include all components of the final glass.

For final glass products with edge sealing built-in in a compressed manner, the specimens shall be prepared and tested with the lowest level of compression and the maximum width and depth of the sealing. The results are also valid for higher levels of compression as well as lower widths and depths of the sealing.

Cornerstones for the necessary tests:

- a) At least three tests with edge exposure of specimens with non-coated or inorganic coated glass panes.
- b) At least three tests with both surface exposure as well as edge exposure of specimens with organic coated glass panes.
- c) At least three tests with edge exposure of specimens turned 90 degrees on their vertical axis and flame impingement of each different layer.
- d) At least three further tests of the most critical specimen configuration and exposure type identified in the tests according "a)" to "c)" to obtain the required number of test results for the classification.

If several numbers of the same type of intermediate layers exist in the specimen assembly, only one layer of this intermediate layer type needs to be tested according the above-mentioned point "c)".