



EUROPEAN ASSESSMENT DOCUMENT

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BALCONY (AND TERRACE) GLAZING SYSTEM WITHOUT VERTICAL FRAMES

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1 SCOPE OF THE EAD

1.1 Description of the construction product

The balcony and (terrace) glazing system consists of anodised or painted horizontal aluminium frames and railings, aluminium and plastic hinges, thermally toughened (with or without heat soaking) glass panes, sealing strips and fastening screws or anchors made of stainless steel, which are used to fasten the system into balcony parapet or railing and roof construction. Glass panes can one by one glide into side direction and turned inward so that the whole balcony front is free from glazing.

Sometimes the delivery includes also external sills, made of coil coated steel or aluminium.

Sometimes the system is used in terraces and then it is fastened to floor and roof construction. In this way used, the system is not intended to act as barrier against falling.

Glass panes are 6, 8 or 10 mm thick depending on the pane size and wind load resistance requirements and height of the glass panel. Most usual pane widths are 550 – 850 mm. The height of the glass pane is highest tested.

Balcony railing is not part of the balcony and (terrace) glazing system.

The product is not covered by a harmonised European standard (hEN). EN 14351-1 (windows) cannot be applied because glazes of a balcony glazing do not have any frames. EN 14351-1 indeed covers unframed doorsets. A balcony glazing, however, neither is a doorset because it usually is not possible to use the glazing as door and pass through it.

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 balcony glazing is used to protect balcony or terrace interior from rain, snow, wind and dirt. The glazed balcony is not warm or half warm space. It is not totally water tight or air tight. When the balcony glazing system is closed it can to some extent diminish sound penetration to the balcony and indoors.

The system can be fastened into concrete, brick, steel, aluminium or timber substrates.

1.2.2 Working life/Durability

The provisions and the verification and assessment methods included or referred to in this EAD have been written based upon the assumed working life of the balcony glazing system for the intended use of 25 years when installed in the works, provided that the balcony glazing system is subject to appropriate installation, use and maintenance (see 1.2.2). These provisions are based upon the current state of the art and the available knowledge and experience.

Therefore, when an assessment following the EAD provisions is made, the assessment and verification methods are appropriate with regard to the assumed working life. 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 works¹.

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 choosing the appropriate products in relation to the expected economically reasonable working life of the works. They are also not appropriate to serve as a basis to derive performances of the product for essential characteristics related to the basic requirement 7 for construction works.

1.3 Specific terms used in this EAD (if necessary in addition to the definitions in CPR, Art 2)

Specific terms regarding balcony glazing systems are presented in Annex A together with an illustration.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of balcony glazing system is assessed in relation to the essential characteristics.

Table 1 Essential characteristics of the product and methods and criteria for assessing the performance of the product related to the essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance (level, class, description)
Basic Works Requirement 3: Hygiene, health and the environment			
1.	Ventilation and dampness	Acc. clause 2.2.1	description
Basic Works Requirement 4: Safety and accessibility in use			
2.	Resistance to wind load	Acc. clause 2.2.2	class and value
3.	Impact resistance (internal and external)	Acc. clause 2.2.3	value, description
4.	Properties of glass panes and other parts	Acc. clause 2.2.4	value, description
Basic Works Requirement 5: Protection against noise			
5.	Airborne sound insulation	Acc. clause 2.2.5	value

¹ 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 the assumed working life.

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

Characterisation of products to be assessed has been done in accordance with available specifications:

The types of the metallic and plastic materials used shall be presented in ETA referring to relevant EN or ISO standards of technical delivery conditions.

Content of the balcony glazing system will be presented in the ETA in format of a list of components including raw materials of each component. Also principal drawing of the cross sections of profiles and description of glazing bead fixing will be included in the ETA.

2.2.1 Ventilation and dampness

The measured widths and lengths of the air vent slots shall be given in the ETA and/or guidance for prevention of dampness by added ventilation.

2.2.2 Resistance to wind load

Glass pane thickness is chosen case by case based on structural design calculations made by the manufacturer who may have design tables or software for the purpose. In the design, local regulations concerning wind pressure and safety shall be taken into account. Glass pane thickness and sizes to the following tests are selected by the manufacturer. The determination of wind load resistance is carried out according to the test sequence presented in EN 12211 for glass thickness and glass size determined by the manufacturer. The glazing shall be mounted for a test as intended in use by the manufacturer. The test pressure value, P_1 (Pa) foreseen for glass thickness concerned by the manufacturer shall be used. Frontal deflection of the glazing shall be recorded at test pressure P_1 . Air permeability test is excluded from the standard test sequence of EN 12211. The glazing shall resist the applied pressure without dislodging or breakage of any component and the specimen shall remain functional.

To simulate the wind load resistance of the complete structure of balcony and terrace glazing the static pressure chamber test applied to windows and door sets, EN 14351-1 + A1 shall be used.

Applied test pressure (P_1) per glass thickness and relative frontal deflection according to EN 12211 shall be declared in ETA.

2.2.3 Impact resistance

The determination of impact resistance is carried out according to EN 12600 on both sides of the glazing system.

The measured impact resistances and way of breakage shall be declared in the ETA according to EN 13049, Safety requirements.

2.2.4 Properties of glass panes and other parts

Properties of glass panes and other parts shall be checked and compared with the specification of the product (e.g. size and location of possibly existing holes in the glass pane).

Durability properties of the glass panes and other parts shall be given in the ETA.

a) UV-radiation resistance

The UV-radiation resistance of the polymeric parts of the glazing system susceptible to the UV-radiation shall be tested according to the standard ISO 4892-2 at least 1000 h. Max changes in dimensions (%), changes in weight (%) of the plastic components and colour changes in components assessed visually shall be given in ETA.

b) Corrosion resistance

Based on the material certificates, type and mean thickness of the corrosion protection of the metallic components shall be given, when relevant.

c) Resistance to racking

Resistance to racking of the balcony glazing system is tested according to standard EN 14608. The test loads shall be according to EN 13115. The specimen shall remain functional.

d) Resistance to static torsion

Resistance to static torsion of the balcony glazing system is tested according to standard EN 14609. The test loads shall be according to EN 13115. The specimen shall remain functional.

2.2.5 Airborne sound insulation

Testing shall be performed according to EN ISO 717-1.

The measured influence of glazing into the sound level in the balcony shall be given 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 products covered by this EAD the applicable European legal act is: Decision 1996/580/EC

The system is: 3

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 2.

Table 2 Control plan for the manufacturer; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Factory production control (FPC)					
1	Control of incoming raw materials	Material certificates	-		Each delivery
2	Control of dimensions of incoming raw material	Measurements			Each delivery
3.	Control of readymade glazing	Comparison to drawings Openability and closeability			Each balcony or terrace

4 REFERENCE DOCUMENTS

As far as no edition date is given in the list of standards thereafter, the standard in its current version at the time of issuing the European Technical Assessment, is of relevance.

EN 14351 -1 + A1 "Windows and doors

EN 12211 "Windows and doors. Resistance to wind load. Test method"

EN 12600 "Glass in building. Pendulum test. Impact test method and classification for flat glass".

EN 13049 "Windows. Soft and heavy body impact. Test method, safety requirements and classification"

EN 12150-1 "Glass in building. Thermally toughened soda lime silicate safety glass. Part 1: Definition and description".

EN 12150-2 "Glass in building. Thermally toughened soda lime silicate safety glass. Part 2: Evaluation of conformity/Product standard".

EN ISO 717-1 " Acoustics. Rating of sound insulation in buildings and of building elements. Part 1: Airborne sound insulation"

EN ISO 4892-2 "Plastics. Methods of exposure to laboratory light sources. Part 2: Xenon-arc lamps (ISO 4892-2:2013)".

EN 14608 "Windows. Determination of the resistance to racking".

EN 14609 "Windows. Determination of the resistance to static torsion".

EN 13115 "Windows. Classification of mechanical properties. Racking, torsion and operating forces"

EOTA TR: 034 "General checklist for EADs/ETAs – Content and/or release of dangerous substances in products "

CEN/TR 16496 "Construction products. Assessment of release of dangerous substances. Use of harmonised horizontal assessment methods"

EN 1991-1-4 "Eurocode 1: Actions on structures. Part 1-4: General actions. Wind actions"

ANNEX A - CHARACTERISATION OF THE CONSTRUCTION PRODUCT

The product which is the subject of a European Technical Assessment issued based on this EAD has been identified for the purposes of the assessment on the basis of:

- General view of the system

