SLOVENSKI STANDARD

SIST EN 13022-2:2006

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Steklo v gradbeništvu – Strukturna zasteklitev – 2. del: Pravila za zastekljevanje

Glass in building - Structural sealant glazing - Part 2: Assembly rules

Glas im Bauwesen - Geklebte Verglasungen - Teil 2: Verglasungsvorschriften

Verre dans la construction - Vitrage extérieur collé - Partie 2 : Regles d'assemblage

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81.040.20 Steklo v gradbeništvu Glass in building

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EUROPEAN STANDARD

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English Version

Glass in building - Structural sealant glazing - Part 2: Assembly rules

Verre dans la construction - Vitrage extérieur collé - Partie 2 : Règles d'assemblage

Glas im Bauwesen - Geklebte Verglasungen - Teil 2: Verglasungsvorschriften

This European Standard was approved by CEN on 13 March 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This European Standard (EN 13022-2:2006) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by IBN/BIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2006, and conflicting national standards shall be withdrawn at the latest by November 2006.

This Part of the standard is one of a series of interrelated standard parts dealing with:

— glass products for structural sealant glazing systems,

— installation of glass products in a structural manner on building façades;

— UV-resistant and structural sealant for use in structural sealant glazing.

The interrelated parts are:

— EN 13022-1: Glass in building — Structural sealant glazing — Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing

— EN 13022-2: Glass in building — Structural sealant glazing — Part 2: Assembly rules

— EN 15434: Glass in building — Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

Structural sealant glazing can be considered as a product; it can also be considered as an assembling method for glass into or onto a framework.

In the first consideration EOTA is mandated by the European Commission to issue ETAs, which sets out the conditions to be fulfilled by a manufacturer in order to place a complete structural sealant glazing and structural sealant glazing kit on the market, intended to be sold as one complete product in one (trade) transaction.

In the second consideration, the framework, glass products, sealant and accessories, materials and components can be the subject of separate, independent (trade) transactions, independently ordered, and supplied on the construction site or in a workshop where an assembler only assembles the various materials and component elements and subsequently installs in the construction, and all in accordance with the conditions and under the responsibility of a designer.

Only when the design of a building can be such that the glass products should be installed directly in the building using a structural glazing technique but under controlled environmental conditions as expressed in Clause 5 of this European Standard should this European Standard apply.

This means that the assembler is only responsible for assembling, not for the design. Assembling and design are two separate tasks with their own responsibilities.

However in a number of countries, contractors have the duty to warn architects if there is a view that something in the design is wrong. An analogy would be in the case of structural sealant glazing where it is assumed that the assembler has the same duty versus the designer. In order to give the assembler a feeling of what the design considerations are, and at the same time to understand what information he requires from the designer, design guidance is given in this European Standard by means of an informative annex.

1 Scope

This European Standard deals with the assembling and bonding of glass elements in a frame, window, door or curtain walling construction, or directly into the building by means of structural bonding of the glass element into or onto framework or directly into the building.

It gives information to the assembler to enable him to organise his work and comply with requirements regarding quality control.

Structural sealant glazing can be incorporated into the façade as follows:

- either vertically; or
- up to 7° from the horizontal, i.e. 83^{o} from the vertical..

This European Standard only deals with the bonding to glass surfaces, i.e. coated or uncoated, and metallic surfaces, i.e. aluminium (anodized or coated), stainless steel, as considered in clause G.2 of EN 15434.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13022-1:2006, *Glass in building — Structural sealant glazing — Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing*

EN 15434:2006, *Glass in building — Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)*

EN ISO 9001:2000, *Quality management systems — Requirements (ISO 9001:2000)*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13022-1:2006, EN 15434:2006 and the following apply.

3.1
structural bonding
assembling of glass elements into or onto window, door or curtain walling framework by means of a structural seal

3.2.
structural sealant
elastic sealant used for making a structural seal

4 Requirements

The assembling of the glass elements into or onto the window, door or curtain-walling framework or directly in the building or construction shall take place under the following controlled environmental conditions:

— temperature of the surface of the frame and of the glass and of the near environment shall be not less than 10 °C and not more than 35 °C;

— for a given temperature, the RH value shall be at least 5% below the value corresponding to the dew point of the support to which the seal is being applied;

— environment in the vicinity of the assembling has to be dust free;

— glass elements are securely fixed until the full curing of the sealant has taken place.

It shall be ensured that the work is executed as foreseen by the design, so that in particular:

— curing of the various seals proceeds as foreseen by the design;

— after curing, the characteristic performances including durability are deemed to satisfy the design requirements.

NOTE For design guidance, refer to Annex B.

5 Assembling/bonding

The assembling manual shall be used for instruction of both the assembling and control and will be a part of the assembling control documentation.

The assembling manual shall make reference to the design of the work and detail the assembling procedures, in particular what is related to:

— list of characteristics claimed by the designer;

— component materials and products, and when appropriate trade name, generic type, marking and labelling;

— cleaning and preparation materials, trade name, generic type, marking and labelling;

— installations, equipment and tools for transport, storage, cleaning, use of primers, other preparation work of bonding surfaces, mixing sealant components, extrusion of sealant;

— cleaning process of the seal bonding surfaces;

— where applicable, process for use of primers;

— positioning of glass and framework before extrusion of sealant, inclusive the application of glazing blocks (see EN 13022-1), anti-adhesive film and backer rod;

— extrusion of sealant;

— waiting time to obtain initial cure and transport and storage conditions just after initial cure;

— waiting time to obtain further curing and final installation in the work;

— finishing processes such as removing temporarily fixing means and application of weather seals;

— information concerning the compatibility of various materials and components.

The assembling manual shall also contain control and testing requirements and conditions, which may be by full description or by reference to this European Standard.

NOTE The designer should specify that:

— sealant conforms to EN 15434 or has an ETA[1)] with the type of substrate used;

— glass products conform to the relevant product standard taking into account EN 13022-1.

For more details, refer to Annex A.

6 Assembling/bonding control

6.1 Assembling/bonding control requirements

6.1.1 General

An assembler operating under a (when required third party surveillance) Quality Assurance System according to EN ISO 9001:2000, in which the quality procedures refer to 6.2 of this European Standard, has the benefit of presumption to comply with this European Standard. If not, the following clauses shall be applied.

6.1.2 Organisation

6.1.2.1 Responsibility and authority

The responsibility, authority and the interrelation of all personnel who manage, perform and verify work-affecting conformity shall be defined, particularly for personnel who need the organizational freedom and authority to:

a) initiate action to prevent the occurrence of non-conformity assembling;

b) identify and record any assembling conformity problems.

6.1.2.2 Management representative for assembling control

The manufacturer shall appoint a management representative who, irrespective of other responsibilities, shall have defined authority and responsibility for ensuring that the requirements of this European Standard are implemented and maintained.

6.1.2.3 Management review

The assembling control system shall be reviewed at appropriate intervals by the manufacturer's management to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained.

6.1.3 Assembling – quality system

6.1.3.1 General

The manufacturer shall establish and maintain a documented system as a means of ensuring that the assembling conforms to this European Standard. The following requirements hereafter shall be fulfilled.

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1) ETA: European Technical Agreement

6.1.3.2 Personnel

The manufacturer shall appoint personnel for the inspections and assembling control tests that will be carried out before (e.g. incoming materials), during and after assembling.

6.1.3.3 Documentation

The manufacturer's documentation and procedures shall be relevant to the assembling and assembling control, and shall adequately describe in a manual:

a) aims and organizational structure, responsibilities and authorities of the management with regard to assembling/bonding conformity;

b) procedures for specifying and verifying the incoming materials (see also the assembling manual);

c) manufacturing (see the assembling manual), production control and other techniques, processes and systematic actions that will be used;

d) inspections that will be carried out before production, the inspection tests during and after production, and the frequency of which they will be carried out.

6.1.3.4 Test equipment

Calibration of test equipment necessary for assembling control shall be documented.

6.1.3.5 Inspection and testing

Clause 6.2 designates the inspections and tests by means of tables. The requirements and records are normative. The test methods are recommended and therefore only given as information. The frequencies are also recommended and therefore given as information, except when otherwise designated.

If another testing scheme is used, or if no testing scheme as described in the annexes is applicable, the testing scheme shall be described in detail in the quality manual.

Annexes A, C, D and E and 5.2 and 5.3 of EN 15434:2006 describe the tests referred to in 6.2 as recommendations.

6.1.3.6 Quality contracts

Inspections and tests on incoming materials (the material control section of the tables in 6.2) can be reduced on the basis of quality contracts between the supplier and the designer, on condition that the contract refers to the appropriate tables in 6.2.

Quality contracts shall include the possibility of an audit of the supplier.

Where contractually requested, quality records shall be made available by suppliers for evaluation by the customer's representative for an agreed period.

6.2 Inspection and testing tables for assembling glass elements into or onto framework with structural sealant

The tables consist of three sections:

— section 1: material control;

— section 2: assembling control;

— section 3: final control.

The tables do not pretend to be exhaustive. The designer or the assembler can complete them. The tables can require something that is inexistent in some design. In such a case, the inspection or test row shall be ignored.

When an assembling process is such that one or more of the listed inspections or tests are not applicable or physically not possible, the concerned inspection or test shall be ignored and an alternative shall be determined.

The inspections and/or tests on incoming materials and component products shall be carried as soon as possible. In case of non-conforming materials, action shall be taken that non conforming assembling will not be performed.

The required records in the tables hereafter can be any document such as order documents, production documents, logbook, etc. as described in the quality procedures and associated documentation. However, records shall not indicate delivery or batch identification. When no record required, it is only valid if there is no negative result. In the case of a negative result, record shall always be made.

Adjustments of machinery and equipment used for assembling are periodically checked against defined parameters for optimal result.

The assembler has to fulfil the requirements of the Clause 5 of this European Standard.