EUROPEAN ASSESSMENT DOCUMENT

EAD 220116-00-0401

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FIXED FIRE-RESISTANT ROOF WINDOW

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This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation (EU) No 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

Contents

1 SCOPE OF THE EAD

1.1 Description of the construction product

The product is a fixed fire-resistant roof window that provides fire resistance and is intended to be installed in an inclined roof or on an upstand placed on a roof. The roof or upstand provide an inclination of the roof window to ensure that water is running off and not piling up.

The fixed fire-resistant roof window consists of the following main components; Pultruded profiles consisting glass fibre and polyurethane resin, brackets and bearings made of steel and insulating glass units with fire resistant capability.

The fixed fire-resistant roof window is not fully covered by a harmonized European standard, since EN 14351-1[1] does not cover resistance to fire and EN 16034, does not cover openable windows.

See Annex A for drawings of the fixed fire-resistant roof window.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise their clients on the transport, storage, maintenance, replacement and repair of the product, as the manufacturer 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 fixed fire-resistant roof window is intended to provide fire resistance and daylighting through roofs with an inclination of 5°° up to and including 80°.

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 rooflight for the intended use of 25 years. 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 works[2].

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.

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1 All undated references to standards or to EAD's in this document are to be understood as references to the dated versions listed in clause 4.

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 the assumed working life.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of the fixed fire-resistant roof window is established in relation to the essential characteristics.

Table 1 Essential characteristics of the product 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 2: Safety in case of fire			
1	Reaction to fire	2.2.1	Class
2	External fire performance	2.2.2	Class
3	Resistance to fire	2.2.3	Class
Basic Works Requirement 3: Hygiene, health and the environment			
4	Watertightness		EN 14351-1 section 4.5
Basic Works Requirement 4: Safety in use			
5	Resistance to wind load		EN 14351-1 section 4.2
6	Resistance to snow and permanent load		EN 14351-1 section 4.3
Basic Works Requirement 5: Protection against noise			
7	Acoustic performance	2.2.4	Level
Basic Works Requirement 6: Energy economy and heat retention			
8	Thermal transmittance	2.2.5	Level
9	Radiation properties	2.2.9	EN 14351-1 section 4.13
10	Air permeability	2.2.10	EN 14351-1 section 4.14
Durability			
11	Durability	2.2.6	Description

2.2 Methods and criteria for assessing and classification of 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.

2.2.1 Reaction to fire

The fixed fire-resistant roof window shall be tested according to EN 13501-1 as described in EN14351-1 and classified using EC Delegated Regulation 2016/364/EU

The class is given in the ETA

2.2.2 External fire performance

The roof in which the fixed fire-resistant roof window is intended to be applied shall be tested using the test method (given in EN 135015-5) relevant for the corresponding external fire performance roof class, in order to be classified according to EC Decision 2001/671/EC (as amended) in connection with EN 13501-5.

2.2.3 Resistance to fire

The fixed fire-resistant roof window shall be classified according to EN 13501-2 and tested according to EN 1365-2, as relevant methods corresponding to the relevant resistance to fire class. The class is given in the ETA

2.2.4 Acoustic performance

The direct airborne sound insulation performance of the fixed fire-resistant roof window shall be evaluated according to EN ISO 10140-1 (application rules for windows) and EN ISO 10140-2 (reference measurement method for windows) or according the tabulated method EN14351-1:2006+A2:2016, Annex B.

Level is expressed according to EN ISO 717-1 and is stated in the ETA.

2.2.5 Thermal transmittance

The thermal transmittance of the fixed fire-resistant roof window shall be tested and level is expressed according EN14351-1 using test method EN ISO12567-2 (reference method) or calculation method in accordance with EN ISO10077-1 and EN ISO10077-2 together with EN673 and ISO15099 using minimum 2 significant figures.

The level of thermal transmittance for the reference sizes are given in the ETA.

2.2.6 Durability

The durability of the fixed fire-resistant roof window shall be ensured as described below and be described in the ETA.

The durability of certain characteristics shall be ensured in accordance with section 4.15.2 of EN 14351-1 excluding the “ability to release”, and with the following precisions and addition:

- Water tightness and air permeability: as described in section 4.15.2 of EN 14351-1.
- Thermal transmittance: as described in 4.15.2 of EN 14351-1 with the following addition; IGUs fulfilling EN1279-5 shall be deemed to meet the durability requirement.

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 2011/246/EC and 98/436/EC.

The applicable AVCP system is 1, due to the fact that the EAD covers fixed fire-resistant roof windows only

3.2 Tasks of the manufacturer

The corner stones of the actions to be undertaken by the manufacturer of the fixed fire-resistant roof window in the procedure of assessment and verification of constancy of performance are laid down in Table 2.

Table 2 Control plan for the manufacturer; corner stones

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	Incoming materials, e.g, - IGU - Fire seal - strip - Profiles	According to relevant specification	To be specified in control plan	To be specified in control plan	To be specified in control plan
2	Instructions on e.g.: - type and quality of all materials and components incorporated in the elements - overall dimensions of prefabricated elements - tolerances of geometry - final inspection	To be specified in control plan	To be specified in control plan	One sample	Every Delivery
3	Reaction to fire	To be specified in control plan	To be specified in control plan	One sample	Once per two years
4	Resistance to fire	To be specified in control plan	To be specified in control plan	To be specified in control plan	To be specified in control plan
5	External fire performance	CEN/TS 1187	Class acc. EN 13501-5	3	Initial start of production and every 5 years

3.3 Tasks of the notified body

The cornerstones of the actions to be undertaken by the notified body in the procedure of assessment and verification of constancy of performance for the fixed fire-resistant roof window are laid down in Table 3.

The intervention of the notified body under AVCP system 1 are necessary for resistance to fire and reaction to fire for products for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).

Table 3 Control plan for the notified body; cornerstones

Subject/type of control *(product, raw/constituent material, component - indicating characteristic concerned)*	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Initial inspection of the manufacturing plant and of factory production control				
Initial inspection of the manufacturing plant and of factory production control carried out by the manufacturer regarding the constancy of performance related to resistance to fire and reaction to fire, taking into account productions stages limiting of organic material and/or the addition of fire retardants.	As defined in control plan	As defined in control plan	As defined in control plan	According to the control plan
Continuous surveillance, assessment and evaluation of factory production control				
Continuous surveillance, assessment and evaluation of the factory production control carried out by the manufacturer regarding the constancy of performance related to resistance to fire and reaction to fire, taking into account productions stages limiting of organic material and/or the addition of fire retardants.	As defined in control plan	As defined in control plan	As defined in control plan	According to the control plan

4 REFERENCE DOCUMENTS

EN14351-1:2006+A2:2016	Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics
EN13501-2:2016	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services
EN1365-2:2014	Fire resistance test of loadbearing elements – Part 2: Floors and roofs
EN13501-1:2018	Fire classification of construction products and building elements - Part 1: Classification using test data from fire reaction to fire tests
EN13501-5:2016	Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests
CEN/TS 1187:2012	Test methods for external fire exposure to roofs
CEN/TS 16459:2014	External fire exposure of roofs and roof coverings – Extended application of test results from CEN/TS 1187
EN1027:2016	Windows and doors - Watertightness - Test method
EN12208:2001	Windows and doors - Watertightness – Classification
EN12211:2012	Windows and doors – Resistance to wind load – Test method
EN12210:2016	Windows and doors – Resistance to wind load – Classification
EN1026:2016	Windows and doors – Air permeability – Test method
EN12207:2016	Windows and doors – Air permeability – Classification
EN ISO12567-2:2006	Thermal performance of windows and doors – Determination of thermal transmittance by hot box method – Part 2: Roof windows and other projecting windows
EN ISO10077-1:2017	Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 1: General
EN ISO10077-2:2017	Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 2: Numerical method for frames
EN410:2011	Glass in building – Determination of luminous and solar characteristics of glazing
EN ISO10140-1:2016	Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for specific products
EN ISO10140-2:2010	Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation
EN ISO10140-4:2010	Acoustics - Laboratory measurement of sound insulation of building elements - Part 4: Measurement procedures and requirements
EN ISO717-1:2013	Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation - Amendment 1: Rounding rules related to single number ratings and single number quantities
ISO15099:2003	Thermal performance of windows, doors and shading devices — Detailed calculations

ANNEX A ILLUSTRATIONS OF THE CONSTRUCTION PRODUCT

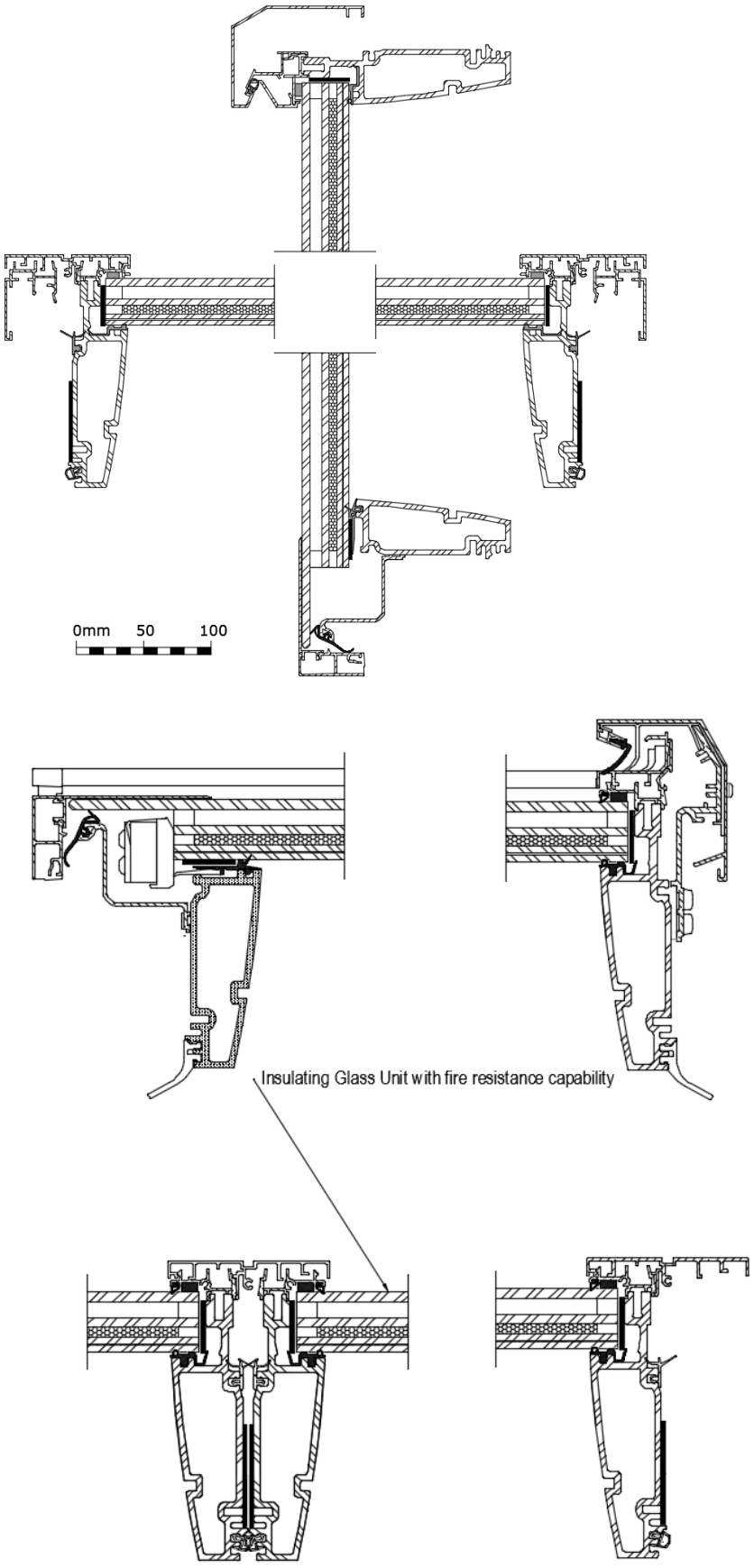

Figure A.1 Product cross sectional drawings of a fixed fire-resistant **window**

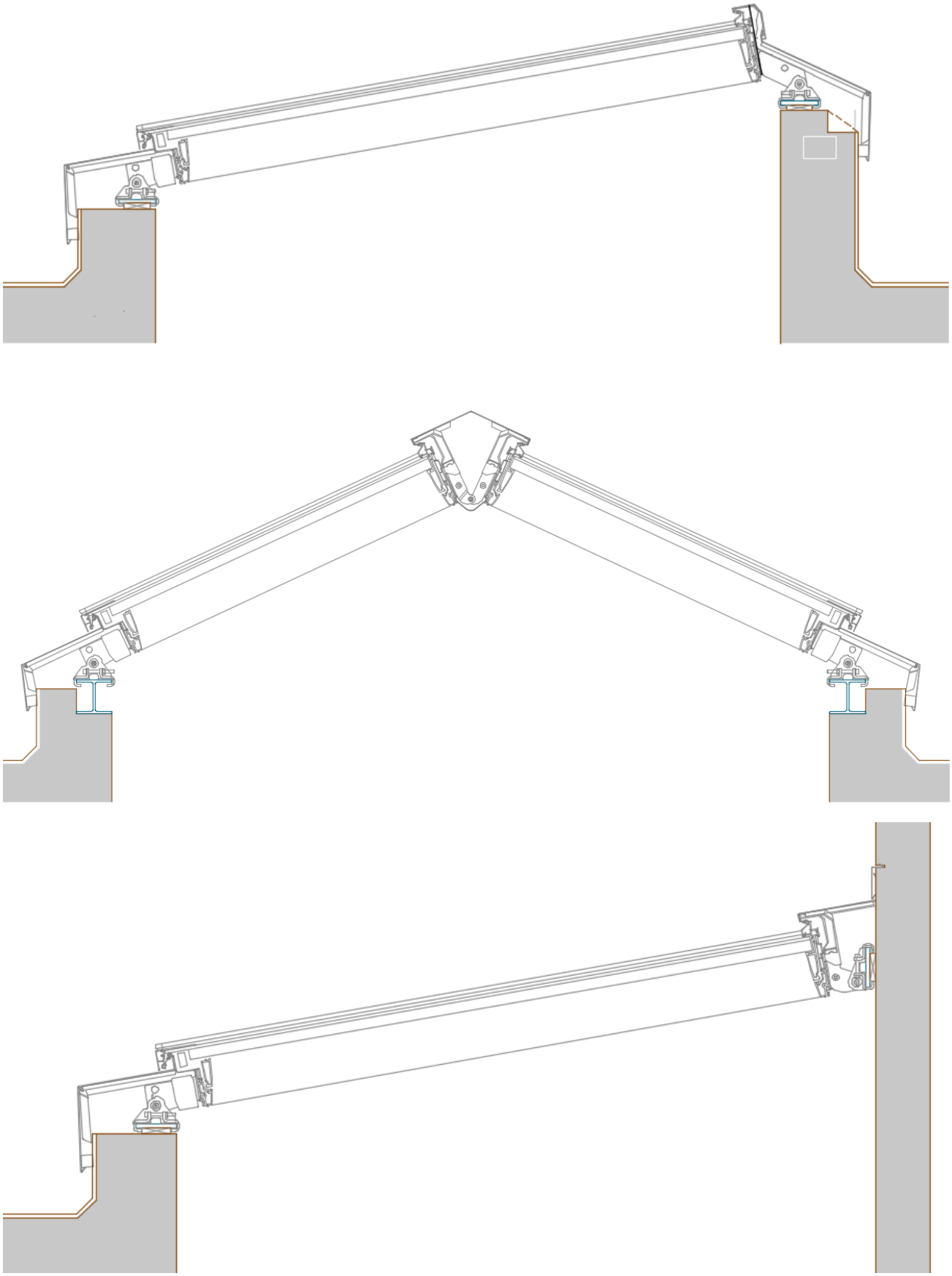

Figure A.2 Drawings of intended use of a fixed fire-resistant **window on upstand (3 scenarios)**

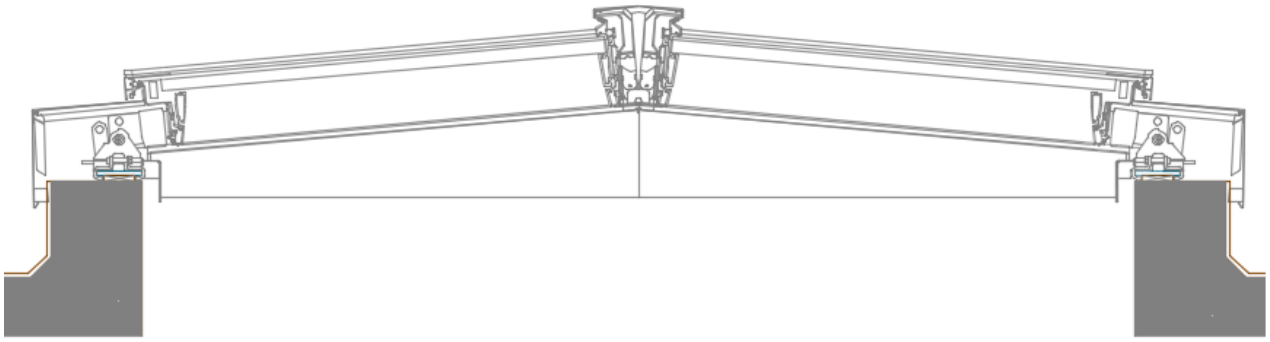

Figure A.3 Drawing of intended use of a fixed fire-resistant **window on upstand with support beam**

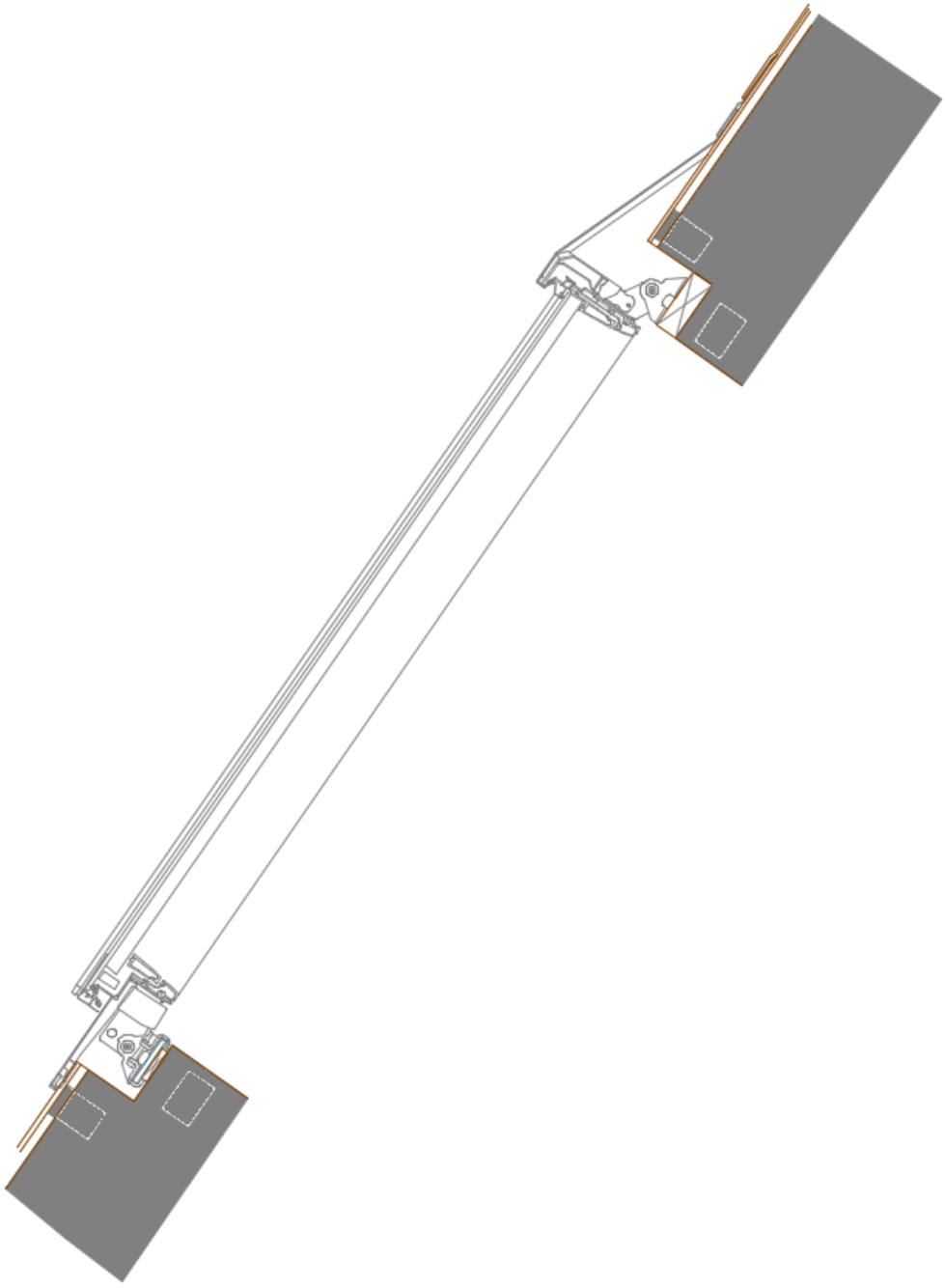

Figure A.4 Drawing of intended use of a fixed fire-resistant **window in roof**