

STN	Prefabrikované príslušenstvo na strešnú krytinu. Samostatné svetlíky z plastu. Špecifikácia výrobku a skúšobné metódy.	STN EN 1873+A1 74 7719
------------	---	--

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/16

Obsahuje: EN 1873:2014+A1:2016

Oznámením tejto normy sa od 01.09.2016 ruší
STN EN 1873 (74 7719) z novembra 2014

122934

EUROPEAN STANDARD

EN 1873:2014+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2016

ICS 91.060.20

Supersedes EN 1873:2014

English Version

Prefabricated accessories for roofing - Individual rooflights of plastics - Product specification and test methods

Accessoires préfabriqués pour couverture -
Lanterneaux ponctuels en matière plastique -
Spécifications des produits et méthodes d'essais

Vorgefertigte Zubehörteile für Dacheindeckungen -
Lichtkuppeln aus Kunststoff - Produktfestlegungen und
Prüfverfahren

This European Standard was approved by CEN on 23 February 2014 and includes Amendment 1 approved by CEN on 7 December 2015.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	6
1 Scope	7
2 Normative references	10
3 Terms and definitions	11
4 Symbols and abbreviations	13
5 Requirements	15
5.1 Radiation properties.....	15
5.1.1 General.....	15
5.1.2 Light transmission	15
5.1.3 Solar direct transmittance τ_e	16
5.1.4 Total solar energy transmittance g	16
5.2 Durability	16
5.3 Water tightness.....	16
5.4 Mechanical performances.....	16
5.4.1 Resistance to upward loads.....	16
5.4.2 Resistance to downward loads.....	16
5.4.3 Impact resistance	17
5.5 Reaction to fire.....	17
5.6 Resistance to fire	18
5.7 External fire performance	18
5.8 Air permeability	18
5.9 Thermal resistance.....	18
5.10 Airborne sound insulation.....	19
5.11 Release of dangerous substances.....	19
6 Testing and classification.....	19
6.1 General.....	19
6.2 Radiation properties.....	19
6.2.1 Total luminous transmittance.....	19
6.2.2 Determination of solar direct transmittance τ_e	20
6.2.3 Determination of total solar energy transmittance g	20
6.3 Durability	20
6.3.1 Classification for durability.....	20
6.3.2 Conditions for accelerated ageing.....	22
6.3.3 Variation of light transmission	22
6.3.4 Variation in yellowness index	23
6.3.5 Variation of mechanical properties with ageing.....	23
6.3.6 Test specimen.....	23
6.4 Watertightness.....	24
6.4.1 Principle	24
6.4.2 Procedure.....	24
6.4.3 Apparatus.....	24
6.4.4 Test specimen.....	24

Dimensions in millimetres	25
6.5 Mechanical performances	26
6.5.1 Resistance to upward and downward loads	26
6.5.2 Impact resistance	27
6.6 Fire behaviour	29
6.7 Air permeability	29
6.8 Thermal transmittance	30
6.9 Relationship between characteristics, families and test specimens	30
6.10 Test report	32
7 Assessment and verification of constancy of performance - AVCP	32
7.1 General	32
7.2 Type testing	33
7.2.1 General	33
7.2.2 Test reports	33
7.3 Factory production control (FPC)	33
7.3.1 General	33
7.3.2 General requirements	34
7.3.3 Product specific requirements	36
7.3.4 Initial inspection of factory and of FPC	37
7.3.5 Continuous surveillance of FPC	38
7.3.6 Procedure for modifications	38
8 Designation and marking	38
Annex A (informative) Guidelines for safety, application, use and maintenance	40
A.1 General	40
A.2 Guidelines for safety	40
A.3 Guidelines for application and use	40
A.4 Maintenance	41
Annex B (normative) Alternative test method for the determination of light transmission	42
B.1 General	42
B.2 Apparatus	42
B.3 Test pieces	43
B.4 Procedure	43
B.5 Expression of results	43
Annex C (normative) Test method for air permeability	44
C.1 General	44
C.2 Test apparatus	44
C.3 Test specimen	44
C.4 Test procedure	45
C.5 Evaluation of the results	45
C.6 Rounding off to be used for the air permeability	45
C.7 Test report	46
Annex D (normative) Determination of thermal transmittance of rooflight	47

D.1	General	47
D.2	Determination of thermal transmittance of rooflight components	47
D.2.1	Determination by measurement	47
D.2.2	Determination by calculation	47
D.2.2.1	General	47
D.2.2.2	Thermal transmittance of the upstand U_{up} and $U_{up,e}$	47
D.2.2.3	Thermal transmittance of the edge profile U_e	47
D.2.2.4	Thermal transmittance of the junction part U_j	47
D.2.2.5	Thermal transmittance of the translucent parts U_t	47
D.2.2.6	Linear thermal transmittances Ψ_e, Ψ_j, Ψ_t	48
D.2.2.7	Definition of starting point for calculation of thermal transmittance	48
D.3	Determination of areas of a rooflight	49
D.3.1	Components	49
D.3.2	Area of the rooflight upstand	50
D.3.3	Area of the edge profile	51
D.3.4	Area of the junction part	53
D.3.5	Area of the translucent part A_t	54
D.3.6	Surface of the rooflight	54
D.4	Total thermal transmittance of individual rooflights	55
D.4.1	General	55
D.4.2	Total thermal transmittance U_r of individual rooflights including the edge profile	56
D.4.3	Total thermal transmittance U_{rc} of individual rooflights including the edge profile and upstand	57
D.4.4	Total thermal transmittance U_{rc} of individual rooflights including the edge profile and upstand (alternative method)	59
D.4.5	Total thermal transmittance U_{rc} of individual rooflights including the upstand without edge profile	60
D.4.6	Total thermal transmittance U_{rc} of individual rooflights including the edge profile and upstand with more than one translucent part	62
D.4.7	Rounding off to be used for thermal transmittance in calculation and classification	63
D.5	Test specimen for evaluation of thermal transmittance: $U_{r,ref}, U_{rc,ref300}$	63
D.5.1	General	63
D.5.2	Reference models	64
D.5.2.1	Individual rooflight without upstand	64
D.5.2.2	Individual rooflight with upstand	64
D.6	Characteristics for supplied rooflight	65
	Annex E (normative) Reaction to fire test	66

E.1	Class E	66
E.1.1	General	66
E.1.2	Mounting and fixing for the small flame test in accordance to EN ISO 11925-2	66
E.2	Class A2 to class D	67
E.2.1	General	67
E.2.2	Mounting and fixing for the SBI test	67
E.3	Class A1	67
Annex ZA (informative)	Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation	68
ZA.1	Scope and relevant characteristics	68
ZA.2	Procedure for AVCP of prefabricated accessories for roofing – individual rooflights of plastics	70
ZA.2.1	Systems of AVCP	70
ZA.2.2	Declaration of performance (DoP)	72
ZA.2.2.1	General	72
ZA.2.2.2	Content	73
ZA.2.2.3	Example of DoP	74
ZA.3	CE marking and labelling	77
	Bibliography	79

European foreword

This document (EN 1873:2014+A1:2016) has been prepared by Technical Committee CEN/TC 128 “Roof covering products for discontinuous laying and products for wall cladding”, the secretariat of which is held by NBN.

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 August 2016, and conflicting national standards shall be withdrawn at the latest by August 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1 approved by CEN on 2015-12-07.

This document supersedes A1 EN 1873:2014 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with the EU Regulation concerning the CPR, see informative Annex ZA, which is an integral part of this document.

A1 *deleted text* A1

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

1 Scope

This European Standard specifies requirements for rooflights made of plastic materials (e.g. GF-UP, PC, PMMA, PVC) and rooflights with upstands made of e.g. GF-UP, PVC, steel, aluminium or wood for installation in roofs. These rooflights serve the purpose of introducing daylight.

This European Standard applies to rooflights with a rectangular or circular ground plan (see Figures 1 and 2), with an opening span (width) or diameter not larger than 2,5 m and an opening length not larger than 3,0 m in roof pitches up to 25°. This document does not cover rooflights which contribute to the load-bearing or stiffness of the roof itself.

This European Standard applies to rooflights and rooflights with upstand, where a single manufacturer provides all components of the rooflight with upstand, which are bought in a single purchase.

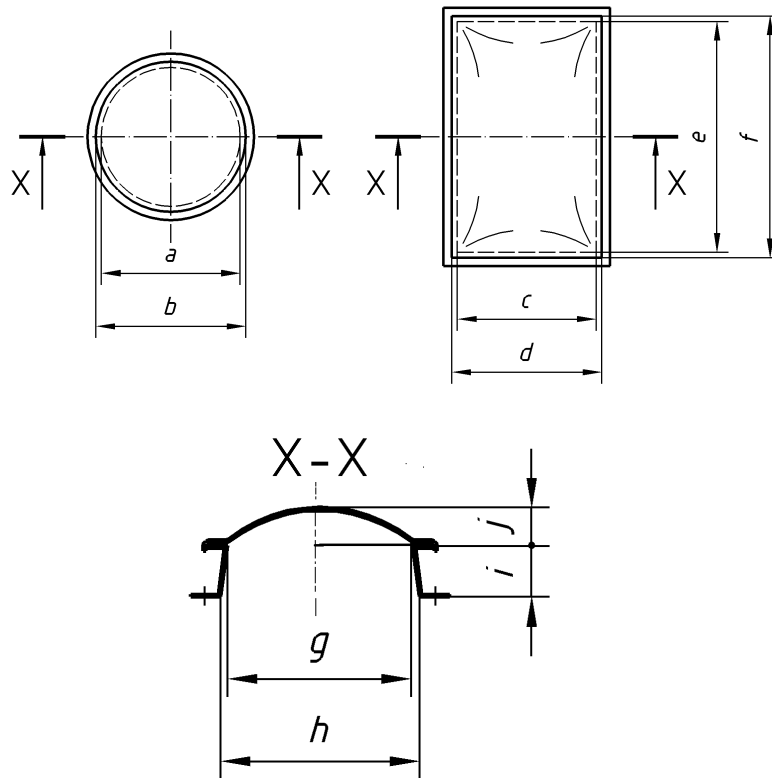
This European Standard applies to rooflights with one or several translucent parts.

Rooflights may be opened by means of opening devices in one or more parts for ventilation.

The possible additional functions of day to day ventilation, smoke and heat ventilation e.g. in case of fire in accordance with EN 12101-2, roof access, and/ or slinging point e.g. in accordance with EN 795 are outside the scope of this document.

This European Standard does not include calculations with regard to construction, design requirements and installation techniques.

NOTE Guidelines for safety, application, use and maintenance of individual rooflights are presented in Annex A.

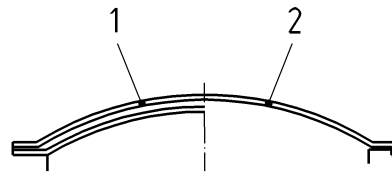


Section X -X without and with additional horizontal skin

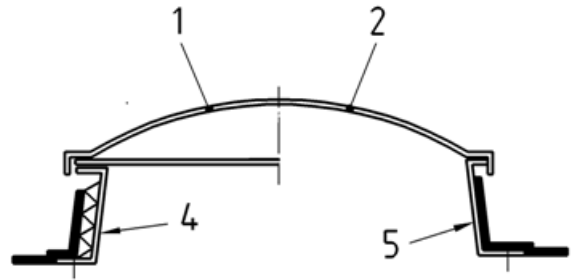
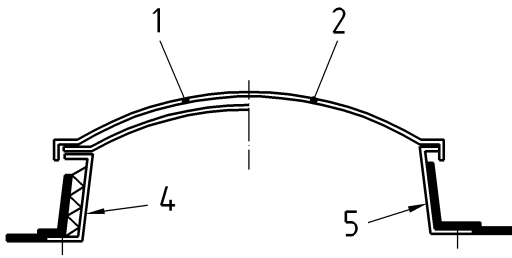
Key

- | | | | |
|---|-----------------------|---|---------------------|
| a | daylight diameter | f | roof opening length |
| b | roof opening diameter | g | daylight size |
| c | daylight width | h | roof opening size |
| d | roof opening width | i | upstand height |
| e | daylight length | j | rooflight height |

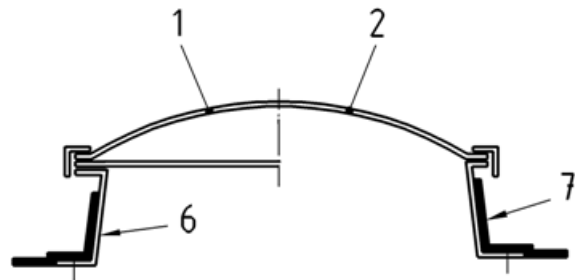
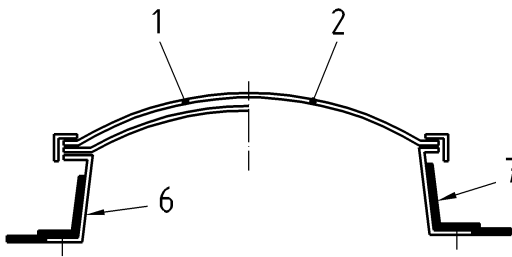
Figure 1 — Typical individual rooflights



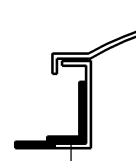
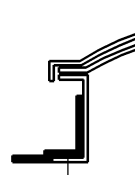
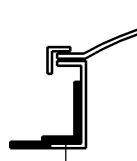
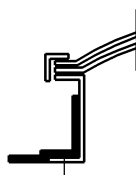
2a) Individual rooflight



2b) Individual rooflight with upstand



2c) Individual rooflight with upstand and edge profile



with edge profile

without edge profile

2d) Vertical upstands

Key

- | | | | | | |
|---|--------------|---|-----------------------|---|-------------|
| 1 | multi skin | 4 | insulated upstand | 7 | roof finish |
| 2 | single skin | 5 | non insulated upstand | | |
| 3 | edge profile | 6 | splayed upstand | | |

Figure 2 — Cross sections of typical individual rooflights and upstands

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 410:2011, *Glass in building — Determination of luminous and solar characteristics of glazing*

EN 596, *Timber structures — Test methods — Soft body impact test of timber framed walls*

EN 673, *Glass in building — Determination of thermal transmittance (U value) — Calculation method*

EN 674, *Glass in building — Determination of thermal transmittance (U value) — Guarded hot plate method*

EN 675, *Glass in building — Determination of thermal transmittance (U value) — Heat flow meter method*

EN 1013, *Light transmitting single skin profiled plastics sheets for internal and external roofs, walls and ceilings — Requirements and test methods*

CEN/TS 1187, *Test methods for external fire exposure to roofs*

EN 12412-2, *Thermal performance of windows, doors and shutters — Determination of thermal transmittance by hot box method — Part 2: Frames*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-5, *Fire classification of construction products and building elements — Part 5: Classification using data from external fire exposure to roof tests*

EN 14351-1, *Windows and doors — Product standard, performance characteristics — Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 16153, *Light transmitting flat multiwall polycarbonate (PC) sheets for internal and external use in roofs, walls and ceilings — Requirements and test methods*

EN ISO 178, *Plastics — Determination of flexural properties (ISO 178)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1)*

EN ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1)*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2)*

EN ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946)*

EN ISO 10077-2, *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 2: Numerical method for frames (ISO 10077-2)*

EN ISO 10140-1, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products (ISO 10140-1)*

EN ISO 10140-2, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 2: Measurement of airborne sound insulation (ISO 10140-2)*

EN ISO 10140-4, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 4: Measurement procedures and requirements (ISO 10140-4)*

EN ISO 10140-5, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 5: Requirements for test facilities and equipment (ISO 10140-5)*

EN ISO 10211, *Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations (ISO 10211)*

EN ISO 11664-1, *Colorimetry — Part 1: CIE standard colorimetric observers (ISO 11664-1)*

EN ISO 11664-2, *Colorimetry — Part 2: CIE standard illuminants (ISO 11664-2)*

EN ISO 12017:1996, *Plastics — Poly(methyl methacrylate) double- and triple-skin sheets — Test methods (ISO 12017:1995)*

EN ISO 12567-2, *Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows (ISO 12567-2)*

EN ISO 13468-1, *Plastics — Determination of total luminous transmittance of transparent materials — Part 1: Single-beam instrument (ISO 13468-1)*

EN ISO 13468-2, *Plastics — Determination of the total luminous transmittance of transparent materials — Part 2: Double-beam instrument (ISO 13468-2)*

EN ISO 14125, *Fibre-reinforced plastic composites — Determination of flexural properties (ISO 14125)*

EN ISO 11925-2:2010, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2010)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN