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KATSEMEETODID

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16153:2013+A1:2015 sisaldab Euroopa standardi EN 16153:2013+A1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 16153:2013+A1:2015 consists of the English text of the European standard EN 16153:2013+A1:2015.
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Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

## Light transmitting flat multiwall polycarbonate (PC) sheets for internal and external use in roofs, walls and ceilings - Requirements and test methods

Plaques d'éclairage multi-parois et planes en polycarbonate (PC) pour usage intérieur ou extérieur dans les toitures, bardages et plafonds - Exigences et méthodes d'essai

Lichtdurchlässige, flache Stegmehrfachplatten aus Polycarbonat (PC) für Innen- und Außenanwendungen an Dächern, Wänden und Decken - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 5 February 2013 and includes Amendment 1 approved by CEN on 24 November 2014.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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## Foreword

This document (EN 16153:2013+A1:2015) 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 September 2015, and conflicting national standards shall be withdrawn at the latest by December 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 2014-11-24.

This document supersedes EN 16153:2013.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 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 the EU Construction Products Regulation 305/2011.

For relationship with the EU Regulation 305/2011, see informative Annex ZA, which is an integral part of this document. A1

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

## Introduction

This document describes the requirements for light transmitting flat multiwall PC sheets for internal and external use in walls, roofs and ceilings.

It is applicable to the sheets for the delivery only. Reference should be made to national regulations and manufacturer's literature for requirements concerning the design, storage and fundamental guidance for installation of sheets, including all safety aspects.

The standards and guideline addressing light transmitting flat multiwall PC sheets for building applications are the following:

- EN 1873, *Prefabricated accessories for roofing — Individual roof lights of plastics — Product specification and test methods* (harmonised standard)
- EN 14963, *Roof coverings — Continuous rooflights of plastics with or without upstands — Classification, requirements and test methods* (harmonised standard)
- EOTA ETA-Guideline 010, *Self supporting translucent roof kits*

The multiwall PC sheets that satisfy the requirements of this document are suitable for use as components in accordance with EN 1873, EN 14963 or EOTA ETA-Guideline 010.

## 1 Scope

This European Standard specifies the requirements for light transmitting flat multiwall polycarbonate (PC) sheets for internal and external use in walls, roofs and ceilings.

This European Standard applies to light transmitting flat extruded multiwall PC sheets with or without functional layers (e.g. coating, co-extruded layer) made from PC-based or other materials, without filling materials.

It also specifies the test methods needed for the evaluation of conformity and marking of the sheets.

## 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 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 1990:2002, *Eurocode — Basis of structural design*

EN 1873:2005, *Prefabricated accessories for roofing — Individual roof lights of plastics — Product specification and test methods*

EN 1995-1-1, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

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

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

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

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

EN 14500:2008, *Blinds and shutters — Thermal and visual comfort — Test and calculation methods*

EN 14963:2006, *Roof coverings — Continuous rooflights of plastics with or without upstands — Classification, requirements and test methods*

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

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291)*

EN ISO 472:2013, *Plastics — Vocabulary (ISO 472:2013)*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1)*

EN ISO 899-2, *Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading (ISO 899-2)*

EN ISO 1043-1:2011, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1:2011)*

EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 4892-2:2006, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2:2006)*

EN ISO 6603-1, *Plastics — Determination of puncture impact behaviour of rigid plastics — Part 1: Non-instrumented impact testing (ISO 6603-1)*

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 10140-1:2010, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products (ISO 10140-1:2010)*

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

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572)*

ISO 11359-2, *Plastics — Thermomechanical analysis (TMA) — Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature*

EOTA ETA-Guideline 010, *Self Supporting Translucent roof Kits*

### **3 Terms, definitions and symbols**

#### **3.1 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN ISO 472:2013, EN ISO 1043-1:2011 and the following apply.

##### **3.1.1**

##### **PC sheet**

extruded sheet substantially made of polycarbonate polymer to which are added those additives to facilitate the manufacture of sheet conforming to the requirements of this standard and customer requirements