

Photovoltaics in buildings - Part 2: BIPV systems

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Photovoltaics in buildings - Part 2: BIPV systems

Systèmes photovoltaïques dans la construction - Partie 2:
Systèmes photovoltaïques incorporés au bâti

Photovoltaik im Bauwesen - Teil 2: BIPV-Anlagen

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European foreword

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1 Scope

This document applies to photovoltaic systems that are integrated into buildings with the photovoltaic modules used as construction products. It focuses on the properties of these photovoltaic systems relevant to essential building requirements as specified in the European Construction Product Regulation CPR 89/106/EEC, and the applicable electro-technical requirements as stated in the Low Voltage Directive 2006/95/EC / or CENELEC standards. This document references international standards, technical reports and guidelines. For some applications in addition national standards (or regulations) for building works may apply in individual countries, which are not explicitly referenced here.

The document is addressed to manufacturers, planners, system designers, installers, testing institutes and building authorities.

This document does not apply to concentrating or building-attached photovoltaic systems.¹

This document addresses requirements on the BIPV systems in the specific ways they are intended to be mounted but not the BIPV modules as construction products, which is the topic of EN 50583-1.

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, *Glass in building — Determination of luminous and solar characteristics of glazing*

EN 1027, *Windows and doors — Watertightness — Test method*

EN 1990, *Eurocode: Basis of structural design*

EN 1991 (all parts), *Eurocode 1: Actions on structures*

EN 1993 (all parts), *Eurocode 3: Design of steel structures*

EN 1995 (all parts), *Eurocode 5: Design of timber structures*

EN 1999 (all parts), *Eurocode 9: Design of aluminium structures*

EN 12179, *Curtain walling — Resistance to wind load — Test method*

prEN 12488, *Glass in buildings — Glazing recommendations — Assembly principles for vertical and sloping glazing*

EN 12519, *Windows and pedestrian doors — Terminology*

EN 12600, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 12758, *Glass in building — Glazing and airborne sound insulation — Product descriptions and determination of properties*

EN 13022 (all parts), *Glass in building — Structural sealant glazing*

EN 13116, *Curtain walling — Resistance to wind load — Performance requirements*

EN 13119, *Curtain walling — Terminology*

EN 13363-1, *Solar protection devices combined with glazing — Calculation of solar and light transmittance — Part 1: Simplified method*

¹ For the definition building-attached photovoltaic systems refer to 3.2

- EN 13363-2, *Solar protection devices combined with glazing — Calculation of total solar energy transmittance and light transmittance — Part 2: Detailed calculation method*
- 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 13830, *Curtain walling — Product standard*
- EN 13956, *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*
- 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 14500, *Blinds and shutters — Thermal and visual comfort — Test and calculation methods*
- EN 14782, *Self-supporting metal sheet for roofing, external cladding and internal lining — Product specification and requirements*
- EN 14783, *Fully supported metal sheet and strip for roofing, external cladding and internal lining — Product specification and requirements*
- EN 15804, *Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products*
- CEN/TR 15941, *Sustainability of construction works — Environmental product declarations — Methodology for selection and use of generic data*
- EN 15942, *Sustainability of construction works — Environmental product declarations — Communication format business-to-business*
- EN 15978, *Sustainability of construction works — Assessment of environmental performance of buildings — Calculation method*
- EN 16002, *Flexible sheets for waterproofing — Determination of the resistance to wind load of mechanically fastened flexible sheets for roof waterproofing*
- EN 50583-1, *Photovoltaics in buildings – Part 1: BIPV modules*
- HD 60364-7-712, *Electrical installations of buildings — Part 7-712: Requirements for special installations or locations — Solar photovoltaic (PV) power supply systems (IEC 60364-7-712)*
- CLC/TS 61836, *Solar photovoltaic energy systems — Terms, definitions, symbols (IEC/TS 61836)*
- EN 62446, *Grid connected photovoltaic systems — Minimum requirements for system documentation, commissioning tests and inspection (IEC 62446)*
- EN ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946)*
- EN ISO 12543-1, *Glass in building — Laminated glass and laminated safety glass — Part 1: Definitions and description of component parts (ISO 12543-1)*
- EN ISO 12543-2, *Glass in building — Laminated glass and laminated safety glass — Part 2: Laminated safety glass (ISO 12543-2)*
- EN ISO 12543-3, *Glass in building — Laminated glass and laminated safety glass — Part 3: Laminated glass (ISO 12543-3)*

EN ISO 12543-4, *Glass in building — Laminated glass and laminated safety glass — Part 4: Test methods for durability (ISO 12543-4)*

EN ISO 12543-5, *Glass in building — Laminated glass and laminated safety glass — Part 5: Dimensions and edge finish (ISO 12543-5)*

EN ISO 12543-6, *Glass in building — Laminated glass and laminated safety glass — Part 6: Appearance (ISO 12543-6)*

prEN ISO 14439, *Glass in building — Glazing requirements — Use of glazing blocks (ISO/DIS 14439)*

EN ISO 12631, *Thermal performance of curtain walling — Calculation of thermal transmittance (ISO 12631)*

ETAG 002, *Guideline for European Technical Approval for Structural Sealant Glazing Systems – SSGS*

N 0068/CEN-TC128-WG3-N0068 TR *Renewable energy systems for roof structural connections*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1990, EN ISO 12543 (Parts 1 to 6), EN 12519, EN 13119, EN 13956, EN 14782, EN 14783, EN 13022, EN 16002, CLC/TS 61836, and the following apply.

Annex-specific definitions are included in the annexes themselves.

NOTE Additional information are provided in the Low Voltage Directive 2006/95/EC, the Construction Product Regulation 305/2011 and the Electromagnetic Compatibility Directive ECD 2004/108/EC.

3.1

Building-Integrated Photovoltaic system

BIPV system

photovoltaic systems are considered to be building-integrated, if the PV modules they utilize fulfil the criteria for BIPV modules as defined in EN 50583-1 and thus form a construction product providing a function as defined in the European Construction Product Regulation CPR 305/2011

3.2

Building Attached Photovoltaic system

BAPV system

photovoltaic systems are considered to be building attached, if the PV modules they utilize do not fulfil the criteria for BIPV modules as defined in EN 50583-1

Note 1 to entry: Further important information on this type of photovoltaic system on roofs is provided by the Technical Report by CEN/TC 128/WG3 - Solar energy systems for roofs: Requirements for structural connections to solar panels.

4 Requirements

4.1 General

As BIPV systems contain electrical components, the systems are subject to the applicable electro-technical requirements as stated in the Low Voltage Directive 2006/95/EC / or CENELEC standards. BIPV systems shall be designed such that they do not contradict the requirements of HD 60364-7-712 for PV systems.

The essential requirements defined in the LVD 2006/95/EC are:

1. Protection against hazards arising from the electrical equipment,
2. Protection against hazards which may be caused by external influences on the electrical equipment.

As electrical systems, BIPV systems are subject to the applicable electro-technical requirements as stated in the Electromagnetic Compatibility Directive ECD 2004/108/EC / or CENELEC standards.

The essential requirements defined in the ECD 2004/108/EC are: