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**Glass in building — Laminated solar  
photovoltaic glass for use in buildings  
— Light transmittance measurement  
method**

*Verre dans la construction — Verre feuilleté photovoltaïque  
pour utilisation dans les bâtiments — Méthode de mesure de la  
transmission lumineuse*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 160, *Glass in building*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Glass in building — Laminated solar photovoltaic glass for use in buildings — Light transmittance measurement method

## 1 Scope

This document specifies a test method of light transmittance for the laminated solar photovoltaic glass for use in building.

This document is applicable to flat modules with light transmittance in the visible range (wavelengths from 380 nm to 780 nm).

This document does not cover the assessment method of total solar energy transmittance of the flat module.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9050:2003, *Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors*

CIE 130, *Practical Methods for the Measurement of Reflectance and Transmittance*

## 3 Terms and definitions

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For the purposes of this document, the terms and definitions and symbols of ISO 9050 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### **laminated solar photovoltaic glass for use in building**

photovoltaic panel which contains at least one piece of glass and fulfils the requirement for building application

### 3.2

#### **cover glass**

glass on the sun facing side of a *laminated solar photovoltaic glass for use in building* (3.1)

### 3.3

#### **back glass/sheet**

glass/sheet on the away from sun facing side of a *laminated solar photovoltaic glass for use in building* (3.1)

### 3.4

#### **substrate structure**

thin film photovoltaic cells formed on the *back glass/sheet* (3.3) (below the encapsulation foil)

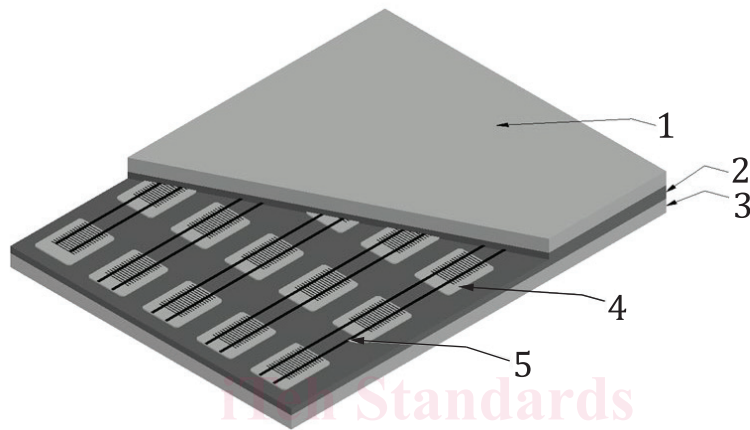
**3.5 superstrate structure**

thin film photovoltaic cells formed on the *cover glass* (3.2) (above the encapsulation foil)

**4 Types of laminated solar photovoltaic glass for use in building**

According to the different ways it can be made transparent, the laminated solar photovoltaic (PV) glass for use in building can be divided into three categories.

- a) Type A: The laminated solar photovoltaic glass consists of lots of single solar cells with a gap, as shown in [Figure 1](#).



**Key**

- 1 cover glass
- 2 encapsulation foil
- 3 back glass/sheet
- 4 solar cell
- 5 busbar

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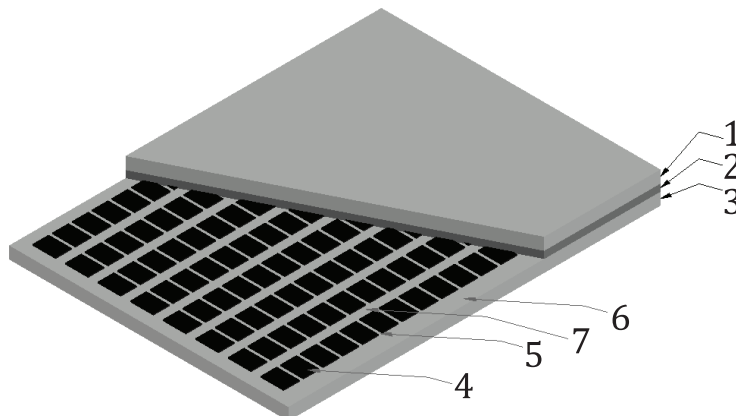
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**Figure 1 — Structure of the module containing of lots of single cells with gap**

- b) Type B: Part of solar cells in the module is etched away by laser or mechanical procedure.

In this kind of module, the solar cells are not transparent and some area of solar cells is etched away by laser or mechanical procedure so the module is partially transparent, as shown in [Figure 2](#). The etched area can be strips or any other shape.



**a) Substrate structure**