
**Building environment design —
Indoor environment — Daylight
opening design for sustainability
principles in visual environment**

*Conception des bâtiments — Espace intérieur — Conception des prises
du jour pour les principes de durabilité dans l'environnement visuel*



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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document was prepared by Technical Committee ISO/TC 205, *Building environment design*.

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.

Introduction

ISO 16813 provides general principles for the design of the indoor environment for buildings. The design process for the indoor visual environment is provided by ISO 16817 to ensure required visual comfort, good physiological effects of light and building energy performance and sustainability.

This document provides design team members with a design process for daylight openings under the umbrella of ISO 16813 and ISO 16817. Receiving daylight is a fundamental human need. It is essential to ensure favourable daylight environments in buildings. Daylight opening design is an indispensable element of building design. This document is targeted at habitable rooms in all buildings to ensure sufficient, quality daylight.

For this document, both windows and rooflights are deemed daylight openings. The size and position of the daylight openings affect the amount of daylight entering a room as well as the view from the daylight opening. An appropriate sizing of the daylight opening ensures a necessary level of daylight and an impression of spaciousness. However, large daylight openings can require more control of daylight in terms of visual and thermal environments. Qualities of daylight admitted through the daylight opening vary depending on the direction in which the daylight opening faces.

This document:

- provides a framework for taking into consideration various parameters and criteria in daylight opening design;
- is intended for use by design teams (architects and engineers), building clients, contractors, government officials and academics;
- is aimed at assisting these groups in designing daylight openings in the process of building design;
- incorporates sustainability considerations into the design of indoor visual environments.

Building environment design — Indoor environment — Daylight opening design for sustainability principles in visual environment

1 Scope

This document provides a design process for daylight openings in order to ensure the principle of sustainability in the indoor visual environment. The design process for daylight openings includes the consideration of:

- sunshine duration in the building interiors;
- daylight opening ratio to the wall area of a habitable room;
- daylight opening ratio to the floor area of a habitable room;
- appropriate levels of indoor daylight based on human visual needs and the extent of sunlight;
- daylight control systems in the building;
- thermal comfort, thermal gains and energy efficiency.

This document is applicable to building environment design for new buildings and the retrofit of existing buildings.

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 8995-1, *Lighting of work places — Part 1: Indoor*

ISO 16817:2017, *Building environment design — Indoor environment — Design process for the visual environment*

3 Terms and definitions

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

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

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

3.1

commissioning

sequence of events that ensure the building and the *technical building systems* (3.16) are functioning in accordance with the design parameters for the building lifetime

[SOURCE: ISO 16813:2006, 3.7 modified — The word “HVAC” has been replaced with “technical building”.]