
**Building environment design — Energy
efficiency — Terminology**

*Conception de l'environnement des bâtiments — Rendement
d'énergie — Terminologie*

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Published in Switzerland

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 16818 was prepared by Technical Committee ISO/TC 205, *Building environment design*.

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Introduction

This International Standard is intended to provide general terms and definitions used in building environment design. Other standards produced by ISO/TC 205 can contain additional definitions more specific to the needs of the individual standard.

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Building environment design — Energy efficiency — Terminology

1 Scope

This International Standard gives terms and definitions for use in the design of energy-efficient buildings. This International Standard is applicable to new buildings and retrofitted existing buildings.

2 Normative references

The following referenced documents are indispensable for the application 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 6707-1, *Building and civil engineering — Vocabulary — Part 1: General terms*

ISO 7345, *Thermal insulation — Physical quantities and definitions*

ISO 7730, *Ergonomics of the thermal environment — Analytical determination and interpretation of thermal comfort using calculation of the PMV and PPD indices and local thermal comfort criteria*

ISO 9229, *Thermal insulation — Vocabulary*

ISO 9251, *Thermal insulation — Heat transfer conditions and properties of materials — Vocabulary*

ISO 9288, *Thermal insulation — Heat transfer by radiation — Physical quantities and definitions*

ISO 9346, *Hygrothermal performance of buildings and building materials — Physical quantities for mass transfer — Vocabulary*

ISO 13789, *Thermal performance of buildings — Transmission and ventilation heat transfer coefficients — Calculation method*

ISO 13790¹⁾, *Energy performance of buildings — Calculation of energy use for space heating and cooling*

ISO 15927-6, *Hygrothermal performance of buildings — Calculation and presentation of climatic data — Part 6: Accumulated temperature differences (degree-days)*

ISO 16813, *Building environment design — Indoor environment — General principles*

1) To be published. (Revision of ISO 13790:2004.)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the normative references and the following apply.

3.1 access hatch

door

NOTE An access hatch is defined as a door, thereby allowing it to meet less stringent envelope requirements. If not defined as a door, it is necessary that it be insulated as a roof or wall, depending on where it was located.

3.2 accessible

admitting close approach; not guarded by locked doors, elevations or other effective means

NOTE As applied to equipment; see also **readily accessible** (3.189).

3.3 adjusted lighting power

lighting power, ascribed to a luminaire(s) that has been reduced by deducting a lighting power control credit based on use of an automatic control device(s)

3.4 adopting authority

agency or agent that adopts this International Standard

3.5 air-conditioned floor area

area equipped with air conditioning equipment measured at floor level from the interior surfaces of the walls

See **gross conditioned floor area**, (3.106). <https://standards.iteh.ai/catalog/standards/sist/627acc26-1bd4-43fb-ab90-2fa3558e9eaa/iso-16818-2008>

3.6 air-conditioned space

space equipped with air conditioning equipment

See **air-conditioned floor area** (3.5).

3.7 air economizer

duct and damper arrangement and automatic control system that together allows a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather

3.8 air handling unit

encased assembly consisting of sections containing a fan or fans and other necessary equipment to perform one or more of the following functions: circulating, filtration, heating, cooling, heat recovery, humidifying, dehumidifying and mixing of air

3.9 alteration

rearrangement, replacement or addition to a building or its systems and equipment

NOTE Routine maintenance and service or a change in the building's category shall not constitute an alteration.

3.10**area factor**

multiplying factor which adjusts the unit power density for spaces of various sizes to account for the impact of room configuration on lighting power utilization

3.11**area of the space**

A

horizontal lighted area of a given space measured from the inside of the perimeter walls or partitions, at the height of the working surface

3.12**authority having jurisdiction**

agency or agent responsible for enforcing this International Standard

3.13**automatic**

self-acting, operating by its own mechanism when actuated by some impersonal intervention, such as a change in current strength, pressure, temperature or mechanical configuration

3.14**automatic control devices**

device capable of automatically turning loads off and on without manual intervention

3.15**average daily temperature**

average of the temperatures readings over a 24 h period

3.16**ballast**

device used in conjunction with an electric-discharge lamp to cause the lamp to start and operate under the proper circuit conditions of voltage, current, wave form, electrode heat, etc.

3.16.1**ballast, electronic**

ballast constructed using electronic circuitry

3.16.2**ballast, hybrid**

ballast constructed using a combination of magnetic core, insulated wire winding and electronic circuitry

3.16.3**ballast, magnetic**

ballast constructed with magnetic core and a winding of insulated wire

3.17**ballast efficacy factor**

ratio of relative light output to the power input

3.18**ballast efficacy factor**

⟨fluorescent⟩ ratio of the ballast factor expressed as a percent to the power input in watts, at specified test conditions

3.19**ballast factor****BF**

ratio of a commercial ballast lamp lumens to a reference ballast lamp lumens, used to correct the lamp lumen output from rated to actual

3.19.1

ballast factor

ratio of the lumen output of a lamp/ballast combination to the lumen output of the same lamp in combination with a piece of laboratory equipment called a reference reactor

NOTE Because a ballast may be designed to operate more than one lamp type, the same ballast model can have more than one ballast factor value.

3.20

below-grade wall

see wall (3.244)

3.21

boiler

device to raise the temperature of a fluid or generate steam

3.22

boiler capacity

rated heat output of the boiler, at the design inlet and outlet conditions and rated fuel or energy input

3.23

budget building design

computer representation of a hypothetical design based on the actual proposed building design

NOTE This representation is used as the basis for calculating the energy cost budget.

3.24

building

construction as a whole, including its envelope and all technical building systems

3.25

building area

greatest horizontal area of a building above grade, within the outside surface of exterior walls, or within the outside surface of exterior wall and the centreline of fire walls

3.26

building entrance

any doorway set of doors, turnstiles or other form of portal that is ordinarily used to gain access to the building by its users and occupants

3.27

building energy cost

computed annual energy cost of all purchased energy for the building

3.28

building envelope

elements of a building that enclose conditioned spaces through which thermal energy can be transferred to or from the exterior, or to or from unconditioned spaces

3.28.1

building envelope, exterior sheltered

elements of a building that separate conditioned spaces from the exterior

3.28.2

building envelope, semi-exterior sheltered

elements of a building that separate conditioned space from unconditioned space (as far as it is not designed for human occupancy) or that enclose semi-heated spaces through which thermal energy can be transferred to or from the exterior, or to or from unconditioned spaces, or to or from conditioned spaces

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NOTE 1 Building envelope defines the surfaces that require insulation or weather-stripping. The outer shell of the building is not necessarily the same as the building envelope, particularly where the building contains semi-heated or unconditioned spaces.

NOTE 2 In some cases, the designer can determine the location of the exterior building envelope by the location that they place the insulation. For instance, it is not uncommon for a stairwell to be at the outside edge of the building. If that stairwell does not have any heating or cooling supply, it can be insulated on the outside edge or the side adjacent to other heated or cooled space. If insulated on the outside, the stairwell becomes indirectly conditioned and the outside wall is the exterior building envelope. If insulated on the inside, the inside wall is likely to become the exterior building envelope (unless the outside exposure is so small that it would still be indirectly conditioned space).

NOTE 3 Where a building with conditioned space also contains semi-heated spaces or unconditioned spaces, the building envelope for the conditioned space is the roofs, walls, floors, doors, fenestration, etc. that separate the conditioned space from the exterior. These elements shall comply with the residential or non-residential conditioned space requirements.

NOTE 4 For semi-heated spaces, the building envelope includes any roofs, walls, floors, doors, fenestration, etc. that separate the semi-heated space from conditioned or unconditioned spaces (as well as from the exterior). These elements shall comply with the semi-heated space requirements, as shall elements separating conditioned space from unconditioned space.

3.29 building exit

any doorway, set of doors, or other form of portal that is ordinarily used for emergency egress or convenience exit

3.30 building grounds lighting

lighting provided through a building's electrical service for parking lot, site, roadway, pedestrian pathway, loading dock, exterior architectural lighting and security applications

3.31 building official

official authorized to act on behalf of the authority having jurisdiction

3.32 building type

classification of a building by usage

3.33 check metering

measurement instrumentation for the supplementary monitoring of energy consumption (electric, gas, oil, etc.) to isolate the various categories of energy use to permit conservation and control, in addition to the revenue metering furnished by the utility

3.34 clerestory

part of a building that rises clear of the roofs or other parts and whose walls contain windows for lighting the interior

3.35 coefficient of performance COP

(cooling mode) ratio of the rate of heat removal to the rate of energy input in consistent units, for a complete cooling system or factory assembled equipment, as tested under a nationally recognized standard or designated operating conditions

3.36
coefficient of performance
COP

(heat pump — heating mode) ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system under designated operating conditions

NOTE Supplemental heat shall not be considered when checking compliance with the heat pump equipment COPs.

3.37
coefficient of utilization
CU

ratio of lumens from a luminaire calculated as received on the work plane to the lumens emitted by the luminaire's lamps alone factored by room surface reflectances and room dimensions

See **room cavity ratio** (3.202).

3.38
conditioned space
treated space

enclosure served by an air distribution system

3.39
connected lighting power

power required to energize luminaires and lamps connected to the building electrical service

NOTE The connected lighting power is expressed in units of watts.

3.40
continuous insulation

insulation that is continuous across all structural members without any thermal bridges, excluding fasteners and service openings

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NOTE It is installed on the interior of, exterior of or integral with any opaque surface of the building envelope.

3.41
control

regulation of the operation of equipment

3.42
control device

specialized device used to regulate the operation of equipment

3.43
control loop, local

control system consisting of a sensor, controller and controlled device

3.44
control point

quantity of equivalent ON or OFF switches ascribed to a device used for controlling the light output of a luminaire(s) or lamp(s)

3.45
cool down

reduction of space temperature down to occupied set point after a period of shutdown or setup

3.46
cooled space

See **space** (3.217).

3.47**cooling**

removal of latent and/or sensible heat

3.48**cooling degree-day**

See **degree-day** (3.58).

3.49**cooling design temperature**

outdoor dry-bulb temperature for sizing cooling systems, equal to the temperature that is exceeded 2,5 % of the number of hours during the nominal cooling season (June through September in northern hemisphere) in a typical weather year

3.50**cooling design wet-bulb temperature**

outdoor wet-bulb temperature for sizing cooling systems and evaporative heat rejection systems, such as cooling towers

3.51**daylit area**

area under horizontal fenestration (skylight) or adjacent to vertical fenestration (window) as described in 3.51.1 and 3.51.2

3.51.1**daylit area, horizontal**

area under horizontal fenestration (skylight) with a horizontal dimension in each direction equal to the skylight dimension in that direction plus either the floor-to-ceiling height, the distance to the nearest 1 m or higher opaque partition, or one-half the distance to an adjacent skylight or vertical glazing clerestory, whichever is least

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See Figure 1.

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3.51.2**daylit area, vertical**

area adjacent to vertical fenestration (window) with one horizontal dimension that extends into the space either a distance of 4,5 m, or to the nearest 1 m or higher opaque partition, whichever is less; and another horizontal dimension equal to the width of the window plus 0,6 m on each side, the distance to an opaque partition, or one-half the distance to an adjacent skylight or window, whichever is least

See Figure 2.