SOC1.5

User control

Objective

Our objective is to achieve a high level of user satisfaction in the indoor areas within property building.
This is why occupants should be provided with the best possible options to control the indoor climate. Aside from the actual conditions in the building, users´ satisfaction also depends on the ability to adjust themselves ventilation, sun and anti-glare protection, temperature and lighting to their individual preferences even beyond the standard settings.

Benefits

Measures which allow occupants to exert the greatest possible influence on the indoor climate increase comfort in a building. In turn, improved comfort contributes to greater satisfaction and productivity.

Contribution to overriding sustainability goals

No direct contribution to the Sustainable Development Goals (SDGs) of the United Nations (UN) or to the German sustainability strategy.

Outlook

Thanks to digital solutions, technology is becoming ever more sophisticated and increasingly tailored to individual needs. It is not necessary to specify concrete solutions in order to achieve points. Instead, designers are encouraged to concentrate more closely on addressing the objectives of the criterion in the context of their project. There are currently no plans to focus more heavily on this objective.

Share of total score

	SHARE	WEIGHTING FACTOR
Office Hotel	2.0%	2
Education	1.8%	2
Residential	2.1%	2
Consumer market Shopping centre	2.3%	2
Business premises		
Logistics Production	0.0%	0

EVALUATION

Individual control of the ventilation, the shading and glare protection, the temperature during and outside the heating period, and the artificial light will be reflected positively in the evaluation by awarding points under the five corresponding indicators. Measures for increasing user control that fall outside of this scope can be credited individually and based on context using the innovation area indicator (indicator 6). In this criterion, a maximum of 100 points can be awarded.

NO.	INDICATOR	POINTS
1	**Ventilation**	
1.1	**Ventilation control**	
	Office	**Max. 25**
	■ Air exchange for a particular room can be controlled in that room	15
	■ Air exchange can be individually controlled by the users or user group (1 to 3 people)	25
	Education	
	■ Room air quality for a particular room can be controlled as required	**20**
	Residential	**Max. 35**
	■ Air exchange for a particular room can be controlled in that room	18
	■ Room air quality for a particular room can be controlled as required using individual adjustment means	30
	■ Room air quality for a particular room can be controlled as required using individual adjustment means on a central control system/smartphone	35
	Consumer market **Shopping centre** **Business premises**	
	■ The ventilation of shops in the premises can be individually controlled by a shop employee. The minimum level of ventilation is specified according to demand.	**25**
	Hotel	**Max. 20**
	■ Air exchange for a particular room can be controlled	15
	■ Air exchange for a particular room can be controlled; ventilation is switched off automatically when windows/balcony doors are opened	20
2	**Shading and glare protection**	
2.1	**Shading and glare protection control**	
	Office	**Max. 30**
	■ Shading or glare protection can be controlled in the room	10
	■ Shading or glare protection can be controlled by the users or user group (1 to 3 people)	20
	■ Shading and glare protection can be controlled by the users or user group (1 to 3 people)	30

Education **Max. 25**

- Shading for a particular room can be controlled in that room 15
- Shading or glare protection can be controlled by the users or user group (1 to 3 people) 20
- Shading and glare protection can be controlled by the users or user group (1 to 3 people) 25

Hotel

- Shading or glare protection for a particular room can be controlled **20**

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3 Temperatures during the heating period

3.1 Room temperature control during the heating period

Office **Max. 15**

- Temperature can be adjusted in the room 8
- Temperature can be individually adjusted by the users or user group (1 to 3 people) 15

Education

- Temperature can be adjusted in the room **15**

Residential **Max. 30**

- Temperature can be adjusted for every living space 25
- Temperature can be adjusted for every living space by means of a central control system/smartphone 30

Consumer market **Shopping centre** **Business premises** **Max. 25**

- The building has a (heating) system to which tenants in all shops can connect their heating installations. 15
- Connection to a system in the building allows the sales manager to individually adjust the room temperature. 25

Hotel

- The temperature for a particular room can be adjusted **20**

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4 Temperatures outside of the heating period (cooling)

4.1 Temperature control outside of the heating period

Office **Max. 15**

- Temperature can be adjusted in the room 8
- Temperature can be individually adjusted by the users or user group (1 to 3 people) 15

Education

- Temperature can be adjusted in the room **15**

Residential **Max. 35**

- Temperature for a particular dwelling can be adjusted 15
- Temperature can be adjusted for every living space 30
- Temperature can be adjusted for every living space by means of a central control system/smartphone 35

Consumer market **Shopping centre** **Business premises** **Max. 50**

- The building has a (cooling) system to which tenants in all shops can connect their cooling installations. 40
- Connection to a system in the building allows the sales manager to individually adjust the room temperature. 50

Hotel

- The temperature for a particular room can be adjusted **20**

5 Artificial light control

5.1 Artificial light control

Office **Max. 15**

- Artificial light can be adjusted in the room 5
- Artificial light can be individually controlled by the users or user group (2 to 3 people) 10
- Artificial light can be individually controlled by a user 15

Education **Max. 25**

- Daylight and artificial light for a particular room can be controlled 15
- Artificial light can be individually controlled by the users or user group (2 to 3 people) 25

Hotel

- Artificial light within a room can be controlled by zone **20**

6 INNOVATION AREA

As in 1.1–5.1

Explanation: If user control means are implemented but cannot be assigned to any of the above categories or measures even though they demonstrably improve users' comfort or well-being, these can be credited in accordance with the evaluation scheme for indicators 1.1–5.1.

SUSTAINABILITY REPORTING AND SYNERGIES

Sustainability reporting

NO.	KEY PERFORMANCE INDICATORS (KPIS)	UNIT
KPI 1	Ventilation can be individually controlled for a particular room or by the users/user groups.	Yes/No
KPI 2	Shading and/or glare protection can be individually controlled for a particular room or by the users/user groups.	Yes/No
KPI 3	Room temperatures (heating period) can be individually controlled for a particular room or by the users/user groups.	Yes/No
KPI 4	Room temperatures (outside of the heating period) can be individually controlled for a particular room or by the users/user groups.	Yes/No
KPI 5	Artificial light t can be individually controlled for a particular room or by the users/user groups.	Yes/No

Synergies with DGNB system applications

- **DGNB BUILDING IN USE (BIU):** Satisfying high standards in this criterion is highly likely to achieve high satisfaction rates when the building is in use, in line with criterion 9.1 of the BIU scheme (user satisfaction).

APPENDIX A – DETAILED DESCRIPTION

I. Relevance

User productivity and satisfaction as well as energy consumption in the building are closely linked to the users' ability to individually control the indoor climate. Important factors in maximising acceptance of the indoor climate are thermal comfort, indoor air quality, noise level and lighting.

II. Additional explanation

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III. Method

Documentary evidence for all indicators in this criterion must be provided for 80% of the rooms allocated to the primary use of the building (for **Hotel** guest rooms and administration).
Compliance with local legal requirements is a basic prerequisite.

Indicator 1: Ventilation
Air exchange ensures that users benefit from an adequate supply of fresh air. Rooms can be supplied with fresh air by window ventilation or by means of controlled ventilation by room ventilation systems. If the user can control either the mechanical or natural ventilation, this will be reflected positively in the evaluation.

Office **Consumer market** **Shopping centre** **Business premises**
For the evaluation up to three workstations may be assigned, as a rule, to a nearby openable window (distance of approx. 5–8 m) in a room with natural ventilation.

Indicator 2: Shading/ glare protection
The purpose of shading is to prevent the building overheating by absorption (e.g. by means of cantilevered brise-soleil) or by reflection (e.g. by means of external blinds). Ideally, windows should be shaded completely. Features which provide user control include awnings, venetian blinds, adjustable louvres, mobile sheets of perforated metal, folding blinds and other similar items which can be influenced by the user. Solar glazing and fixed elements cannot be influenced by the user and will not be recognised in the evaluation. Solar protection must be provided on the outside of the building or between the layers of multiple glazing panels. Permissible energy transmission values should, in wave lengths, be between g= 300 nm and g= 2500 nm. Explicit evidence must be provided for alternative shading measures.

The purpose of glare protection is to safeguard the equal distribution of light within the room and create a diffuse lighting scheme, which allows for glare-free work. Examples for suitable glare protection include curtains, roman blinds, roller blinds, and louvres mounted inside windows or on the indoor surface of windows. External venetian blinds do not provide adequate glare protection. Explicit evidence must be provided for alternative glare protection measures.

Indicator 3: Temperatures during the heating period

Occupants should benefit from opportunities to influence the temperature in rooms or in zones within the room. Opening windows does not qualify, because it does not provide occupants with the opportunity to actively influence the temperature. Hence this indicator specifically looks for temperature control.

Indicator 4: Temperatures outside of the heating period (cooling)

Active cooling is required for the purposes of the evaluation. Alternatively, if the choice of passive systems achieves a cooling effect that allows for individual adjustments to the indoor climate for groups of people or rooms, this can also be credited.

Indicator 5: Artificial light control

Depending on the situation, occupants should be provided with the opportunity to reduce daylight or enhance it with artificial lighting.
(restricted to brightness; no other artificial lighting qualities).

IV. Usage-specific description

This criterion does not apply to the schemes **Logistics** **Production buildings**

The following indicators do not apply in the schemes **Residential** **Consumer market** **Shopping centre** **Business premises** :

Indicator 2: Shading/ glare protection
Indicator 5: Artificial lightcontrol

APPENDIX B – DOCUMENTATION

I. Required documentation

A range of different/alternative forms of documentation is listed below. The documentation submitted must comprehensively and clearly demonstrate compliance with the requirements for the target evaluation of the individual indicators.

Indicator 1: Ventilation

- Excerpt from the ventilation concept for the building, outlining the essential features of the design and detailing fundamental assumptions regarding the building and the useable energy demand for air conditioning in accordance with DIN V 18599 or local requirements.
- Documentation of the spatial allocation of the windows to workstations

Indicator 2: Shading/ glare protection

- Information on shading system, e.g. in the form of data sheets from the manufacturer
- Description of the shading system, listing products and manufacturers and providing information on the type and extent of control possibilities
- Information on glare protection, e.g. in the form of data sheets from the manufacturer
- Description of the glare protection system, listing products and manufacturers and providing information on the type and extent of control possibilities

Indicator 3: Temperatures during the heating period

- Information on the heating system, e.g. in the form of data sheets from the manufacturer
- Detailed heating concept with information on the components installed, the control system and the relevant parameters, e.g. system temperatures
- Documentation detailing how a heating system is controlled and the extent of the area that the user has control over (i.e. control by zone or by room)
- Documentary evidence of the control options available to the user, e.g. in the form of photo documentation

Indicator 4: Temperatures outside of the heating period (cooling)

- Information on the cooling/air-conditioning system, e.g. in the form of data sheets from the manufacturer
- Detailed cooling/air-conditioning concept with information on the components installed, the control system and the relevant parameters, e.g. system temperatures

Indicator 5: Artificial light control

- List of products and manufacturers for illuminating the office workstations and workspaces, e.g. in the form of data sheets from the manufacturers
- If different fittings are used for different workstations or workspaces, all fitting types must be documented and included in the evaluation.

APPENDIX C – LITERATURE

I. Version

Change log based on Version 2018

PAGE	EXPLANATION	DATE

II. Literature

- DIN V 18599. Energy efficiency of buildings - Calculation of the net, final and primary energy demand for heating, cooling, ventilation, domestic hot water and lighting - Part 1: General balancing procedures, terms and definitions, zoning and evaluation of energy sources. Berlin: Beuth Verlag. October 2016. http://tc76.org/spc100/docs/IBP%2018599/18599-1.pdf