MICROSHADE® IN DGNB-CERTIFIED CONSTRUCTION

Photo: HGEsch

Introduction to

DGNB - Denmark

DGNB, (**D**eutsche **G**esellschaft für **N**achhaltiges **B**auen), is an internationally recognized certification scheme that evaluates and promotes sustainability in construction and urban planning. The DGNB Certification Scheme is designed to ensure that buildings and urban areas meet high standards of environmental, economic, and social sustainability.

The DGNB Certification considers various aspects of a building or an urban area, including energy efficiency, materials and resource consumption, health, and comfort for users as well as integration into the surrounding environment. The certification is based on a comprehensive assessment, where a number of criteria and parameters are assessed, and points are awarded in relation to how well the building or urban area meets these criteria.

The benefits of achieving a DGNB certification include recognition of sustainable practices, improved market value and viability of buildings, reduced energy consumption and environmental impact, and increased user comfort and well-being.

DGNB Manuals

The DGNB Certification system has been localized and translated into multiple languages to align with the specific requirements of each host country. In this manual we will focus on the Danish translation.

- **DGNB 2023 Denmark (DK)**
- **DGNB 2020 Denmark (DK)**
- **DGNB 2016 Denmark (DK)**

In the end you will find an overview of which criteria MicroShade® effects for the manuals stated.

DGNB **CERTIFICATE**

To obtain the DGNB classification for its construction, points must be earned within the 36 criteria to meet the minimum requirement. There are three certificate levels:

Silver:	50 % Total Performance 35 % In each Quality
Gold:	65 % Total Performance 50 % In each Quality
Platin:	80 % Total Performance 65 % In each Quality

DGNB – **MANUAL**

The manual covers new construction and extensive renovations within the following building types:

- Office and Administration Buildings
- Educational Buildings
- Residential Buildings
- Consumer Market Buildings
- Shopping Centre Buildings
- Department stores
- Logistics Buildings
- Production Buildings
- Hotel Buildings
- Mixed use

DGNB-criteria

The DGNB certification follows a structured framework consisting of criteria and sub-criteria categorized into six main areas. Each main area has specific evaluation points assigned to its criteria, and when applicable, checklist points are provided for sub-criteria. These checklist points contribute to the final evaluation points for each criterion.

The evaluation results are presented as a percentage of the maximum achievable points. Based on the percentage achieved, a building is awarded either a silver, gold, or platinum certification, indicating its level of sustainability and performance.

It's important to acknowledge that the specific criteria, sub-criteria, and evaluation points may vary depending on the version and language of the DGNB certification being used. Therefore, it is essential to refer to the relevant DGNB documentation packages and guidelines provided by MicroShade A/S or the DGNB itself for accurate and up-to-date information.

AWARDS

In addition to the certification levels, the DGNB has introduced various awards across different versions. For example, the DGNB 2016 DK introduced the DGNB Diamond as a secondary architectural quality award. In the DGNB 2020 DK the DGNB Heart was incorporated, which recognizes an extraordinary focus on human health and in DGNB 2023 was DGNB Planet introduced rewarding an extraordinary focus on planetary boundaries.

DGNB **Diamond**

In 2016, the DGNB Diamond was introduced as an additional award recognizing architectural quality. The DGNB Diamant assessment process involves two phases evaluated by a panel of expert judges. Points are awarded for each phase, contributing to the overall DGNB Diamond recognition.

2020-2023 DK

DGNB **Heart**

DGNB Heart is an award for design with a focus on people's health and well-being. The heart is an independent distinction for health and comfort in the certification of a building and gives an extra focus on the users of the building. The heart is awarded if a combined 75% fulfillment of the DGNB heart indicators is achieved.

2023 DK

DGNB **Planet**

DGNB Planet is an award for getting the construction within the planetary limits. DGNB Planet consists of series of knock out requirements, all of which must be met. Furthermore, is it requirement what performance on all knock-out requirements is visible, meaning for example the LCA is open to the public. Furthermore, is required to provide an annual report of the subject.

MicroShade contribution to **DGNB-certification**

MicroShade® has the potential to contribute to several criteria in DGNB certification and can positively influence the awards and bonuses in the certification process.

Calculation guidelines and transparent file sharing makes it easy to compare MicroShade® in your project.

We have developed a comprehensive library of guidelines and files to ensure the correct and effective use of our products throughout all phases of construction. This extensive resource is freely available for download and utilization in your project. By providing these guidelines and files, MicroShade aims to promote good design practices and facilitate well-balanced decision-making from the beginning to the completion of your project.

MicroShade® - Product Environment Declaration

MicroShade provides an Environmental Product Declaration (EPD) that allows for a comparative analysis of Micro-Shade's product in relation to other similar products, specifically assessing their environmental performance. The EPD serves as a transparent and trust-worthy source of information, as it undergoes independent third-party verification, ensuring its reliability.

SWECO HQ, Copenhagen, DGNB GOLD

DGNB - Documentation packages

At MicroShade, you will find our DGNB documentation package, which contain relevant information for your DGNB project. Please note that the documentation package included relevant information for DGNB Denmark version 2016, 2020 and 2023.

The Documentation packages contains:

- EPD
- Technical User Manual
- Weighted View out Calculation
- Content of declaration
- Passive Design Concept (DK)

The documentation also provides calculation guidelines to support calculating thermal comfort and daylighting. The guidelines can be found on our website under the tab "FOR PROFESSIONALS".

MicroShade also provides the simulation tool, SimShade, which can advise industry professionals in glazing system compositions and shading solutions, ensuring informed decisions in the early design phase.

PACKAGES – **DOCUMENTATION**

On our website, you can find the DGNB documentation package. The package includes materials for DGNB 2016, 2020 and 2023. The documentation packages are available for download on our website: www.microshade.com

ENV1.2 – **DOCUMENTATION**

There are no materials that are prohibited in the DGNB, but there are products where documentation of ingredients is required if the product is to be part of a DGNB-certified building - in the case of MicroShade® is no substance needed to be declared.

You can find more information in our Content of declaration in the documentation packages at MicroShade.

MicroShade's Contribution

DGNB 2020-2023 DK

This list provides an overview of the criteria and the associated knowledge and product details offered by MicroShade in DGNB 2020-2023 DK. It is important to note that the specific criteria in the DGNB may vary between countries and versions.

CRITERIUM		What can MicroShade® do, and what do we provide?
PRO 2.4 User communication	♥	MicroShade provides a sustainability and technical user manual. More Information is in our technical user manual in the documentation packages.
ENV 1.1 Life cycle assessment	**BONUS**	An EPD on the MicroShade® is available which offers an analysis of the environmental performance of our product. More Information is in our technical user manual in the documentation packages.
ENV 1.2 Environmentally hazardous substances	♥	The MicroShade® has no material to declare. More Information is in our Declaration of content in the documentation packages.
ECO 1.1 Total economy	**BONUS**	The MicroShade® offers a life span equal to a window system, eliminating the need to replace the shading device. Furthermore, can an early price estimate to an LCC be taken directly from MicroShade online simulation tool (SimShade).
ECO 2.2. Robustness	♥	**ECO 2.2.1** The climate screen's robustness The MicroShade® does not affect the robustness of the window system. **ECO 2.2.3** Passive design The MicroShade® is an element of a passive design concept designed to reduce the primary energy demand. Furthermore, is it in alignment with DGNB's focus on innovation. More Information is found in documentation packages.

SOC 1.1 Thermal comfort	♥	MicroShade provides thermal comfort guidelines for a large variety of building simulation tools. The guidelines provide instructions to calculate a building's thermal comfort, promoting health and well-being at work and home. **Guidelines:** IES-VE, BE18, IDA ICE, Ladybug Tools. The guidelines are on our website MicroShade.
SOC 1.4 Visual Comfort	♥	**SOC 1.4.1** Daylight / Daylight in the relevant floor area MicroShade provides daylight calculation guidelines for a large variety of building simulation tools. The guidelines provide instructions to calculate a building's daylight, promoting health and well-being at work and home. **Guidelines:** Climate Studio, Light Stanza, Velux Daylight Visualizer, IES-VE, DIVA, Ladybug Tools. The guidelines are on our website MicroShade. **SOC 1.4.2.1** Direct Sunlight MicroShade® always provides plenty of daylight due to unique design to shade while maintaining the daylight and view out. **SOC 1.4.2.2** Activation time for solar shadings MicroShade® is passive solar shading meaning it is always active. The weighted view out is based on EN14501:2021 where MicroShade® is in view class 4. Please see the documentation package for more information. **SOC 1.4.2.3** Color rendering of daylight MicroShade online simulation tool (SimShade® SimShade). can provide a color rendering of daylight.
SOC 1.4 Visual Comfort	♥	**SOC 1.4.3** Daylight glare MicroShade® is not directly a glare protection shading device, however studies have proven that MicroShade® has a positive effect. Furthermore, can MicroShade A/S provide BSDF files for a large variety of glazing and shading systems to use in glare simulation. **Guidelines**: Daylight Guideline
TEC 1.1 Fire Protection and Safety		The MicroShade® can contribute to fire protection and safety as the product does not contain PVC. More Information is found in our Declaration of content in documentation packages.

TEC 1.3 Quality of the building envelope	♥	The MicroShade® can contribute to the quality of the climate screen as the product does not change the U-Value of the window system.
TEC 1.5 Design for ease of maintenance and cleaning	♥	The MicroShade® is placed in the window construction and does not require special cleaning or maintenance.
TEC 1.6 Dismantling and recycling	**BONUS**	The MicroShade® do not complicate the dismantling and recycling process as MicroShade® is burned off in the recycling of the glass.
TEC 1.8 Documentation with environmental product declarations (EPD)		MicroShade provides an environmental product declaration. The EPD can be found in the documentation packages.

MicroShade's Contribution

DGNB 2016 DK - certification of apartment buildings

This list provides an overview of the criteria and the associated knowledge and product details offered by MicroShade in DGNB 2016 DK. It is important to note that the specific criteria in the DGNB may vary between countries and versions.

CRITERIUM		What can MicroShade® do, and what do we provide?
PRO 1.5 Guidance on maintenance and use of the building	♥	MicroShade provides a sustainability and technical user manual. More Information is in our technical user manual in the documentation packages.
ENV 1.1 Life cycle assessment	**BONUS**	An EPD on the MicroShade® is available which offers an analysis of the environmental performance of our product. More Information is in our technical user manual in the documentation packages.
ENV 1.2 Environmentally hazardous substances	♥	The MicroShade® has no material to declare. More Information is in our Declaration of content in the documentation packages.
ECO 1.1 Total economy	**BONUS**	The MicroShade® offers a life span equal to a window system, eliminating the need to replace the shading device. Furthermore, can an early price estimate to an LCC be taken directly from MicroShade online simulation tool (SimShade).

ECO 2.2. Financial future security	♥	**ECO 2.2.1** The standard of the building The MicroShade® does not affect the robustness of the window system. **ECO 2.2.3** Passive design The MicroShade® is an element of a passive design concept designed to reduce the primary energy demand. Furthermore, is it in alignment with DGNB's focus on innovation. More Information is found in documentation packages.
SOC 1.1 Thermal comfort	♥	MicroShade provides thermal comfort guidelines for a large variety of building simulation tools. The guidelines provide instructions to calculate a building's thermal comfort, promoting health and well-being at work and home. **Guidelines:** IES-VE, BE18, IDA ICE, Ladybug Tools. The guidelines are on our website MicroShade.
SOC 1.4 Visual Comfort	♥	**SOC 1.4.1/1.4.2** Daylight / Daylight in the relevant floor area MicroShade provides daylight calculation guidelines for a large variety of building simulation tools. The guidelines provide instructions to calculate a building's daylight, promoting health and well-being at work and home. **Guidelines:** Climate Studio, Light Stanza, Velux Daylight Visualizer, IES-VE, DIVA, Ladybug Tools. The guidelines are on our website MicroShade. **SOC 1.4.3** View out MicroShade® is passive solar shading meaning it is always active. The weighted view out is based on EN14501:2021 where MicroShade® is in view class 4. Please see the documentation package for more information. **SOC 1.4.7** Color rendering of daylight MicroShade online simulation tool (SimShade® SimShade). can provide a color rendering of daylight. **SOC 1.4.8** Direct Sunlight MicroShade® always provides plenty of daylight due to unique design to shade while maintaining the daylight and view out.

TEC 1.1 Fire Protection and Safety		The MicroShade® can contribute to fire protection and safety as the product does not contain PVC. More Information is found in our Declaration of content in documentation packages.
TEC 1.3 Quality of the building envelope	♥	The MicroShade® can contribute to the quality of the climate screen as the product does not change the U-Value of the window system.
TEC 1.5 Design for ease of maintenance and cleaning	♥	The MicroShade® is placed in the window construction and does not require special cleaning or maintenance.
TEC 1.6 Dismantling and recycling	**BONUS**	The MicroShade® do not complicate the dismantling and recycling process as MicroShade® is burned off in the recycling of the glass.
TEC 1.8 Documentation with environmental product declarations (EPD)		MicroShade provides an environmental product declaration. The EPD can be found in the documentation packages.

Contact information

If you want to know more about MicroShade:

Visit MicroShade (www.microshade.com)
Follow us on LinkedIn.
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