



PRO2.2

Quality assurance of the construction

Objective

Our objective is to ensure that the requirements with regard to sustainability aspects from the planning stage are appropriately implemented by conducting informative quality assurance processes during the construction phase and, based on this, to provide documentation that these requirements have actually been fulfilled.

Benefits

If the quality of the building can be verified by means of appropriate investigations, this plays a key role in ensuring that the building can be used sustainably and for a long time to come. This provides the building owner with informative documentation of the quality of the commissioned work, and the user can be informed of this as appropriate.

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

Quality as one of the basic requirements for sustainable buildings will continue to be one of the central tenets of this system in this form. There are currently no plans to make any modifications or to make any of the requirements stricter.

Share of total score

	SHARE	WEIGHTING FACTOR
Office		
Education		
Residential		
Hotel	1.6%	3
Consumer market		
Shopping centre		
Business premises		
Logistics		
Production		



EVALUATION

Indicator 1 is used to give credit where quality assurance processes have been established in the property in the form of a superordinate plan. Indicator 2 provides incentives to implement quality assurance processes, such as measurements for various sustainability issues. Measures that fall outside of the scope of the proposed topics can be credited as an alternative under the Innovation area indicator. Indicator 3 gives credit for the site management implementing strict quality assurance with regard to relevant characteristics of the construction products used. Indicator 4 is used to give credit for measures to prevent or reduce the risk of mould growing. A maximum of 60 points can be obtained for indicators 2.1 to 2.8 – that is to say that it is not necessary to carry out all the measurements in order to obtain the maximum possible number of evaluation points, but rather only those measurements that are relevant to the project. In this criterion, a maximum of 100 points can be awarded.

NO.	INDICATOR	POINTS
1	Quality assurance planning	
1.1	Quality assurance plan	10
	A quality assurance plan has been drawn up for the completed building, focussing on relevant measurements and on specifying the people responsible for the tasks	
2	Quality control measurements	
2.1	Implementation of quality control measurements	Max. 60
2.1.1	Differential pressure has been measured (using blower door test) before fitting work is implemented	+20
2.1.2	Thermal imaging measurement has been carried out for the building	+10
2.1.3	Reverberation period has been measured for relevant, representative building components	+10
2.1.4	Sound reduction index (airborne sound insulation) pertaining to the attenuation of external noise ingress (e.g. by means of the façade) has been determined	+10
2.1.5	Sound reduction index (airborne sound insulation) pertaining to the attenuation of noise in the interior (e.g. by means of meeting-room walls) has been determined	+10
2.1.6	Measurements have been taken to determine the footfall sound level for the ceilings	+10
2.1.7	Other measurements that are relevant to the building (e.g. immissions control measurement, smoke extraction tests, moisture measurement prior to laying floor coverings in order to prevent moisture damage, etc.) have been taken – and the associated zero-defect declaration has been submitted	+10



Re 2 **INNOVATION AREA**



As in 2

Explanation: Additional or alternative measurements or other quality assurance measures can be credited here if they provide documentation of the high quality of the building or its building components and are not required by law or by the authorities and are not common practice.

3 Quality assurance for construction products

3.1 Quality assurance for the construction products used

20

Site management have been instructed based on the requirements lists drawn up for the construction products that are to be used on the basis of criteria ENV1.2, ENV1.3 and SOC1.2 and

A continuous target/achieved comparison of the materials used (as required) has been conducted and the site management have produced documentation to this effect in the form of site inspection reports

4 Mould prevention

4.1 Mould prevention

10

A ventilation programme tailored to the building situation has been drawn up and implemented in order to ensure that the building components are sufficiently dry



SUSTAINABILITY REPORTING AND SYNERGIES

Sustainability reporting

The number of sustainability aspects for which quality assurance measurements have been taken is a good key performance indicator (KPI) to report. The results of moisture measurement or mould prevention measures can be used for reporting purposes in accordance with "Level(s) – Common EU framework of core environmental indicators".

NO.	KEY PERFORMANCE INDICATORS (KPIs)	UNIT
KPI 1	Number of sustainability aspects for which quality assurance measurements have been taken	[number]
KPI 2	Mould prevention measures implemented; corresponds to Level(s) indicator 4.1 Mould inspection	[Yes]

Synergies with DGNB system applications

- **DGNB OPERATION:** The results of the measurements can be used in criterion 9.1 of the scheme Buildings in use (BIU) as a basis for reporting relevant key performance indicators.
- **DGNB INTERIORS:** The results for indicators 2.3 and 2.5 can be used in criterion SOC1.3 of the scheme Interiors.
- **DGNB DISTRICTS:** Information from this criterion can be used in criterion PRO1.8 of the schemes UD (urban district) and BD (business district).



APPENDIX A – DETAILED DESCRIPTION

I. Relevance

Particularly in light of the increasing complexity of projects and the many different parties involved in planning and, above all, implementing these projects, quality assurance measures are crucial. "Invisible" defects, in particular, which can have significant negative consequences for both the use and the user, can only be detected by taking measurements. These defects must be eliminated before the building comes into use.

Furthermore, the planned energy performance can only be achieved if the building envelope is the correct impermeability. This must also be measured to verify that this is the case. This kind of measurement-based quality assurance must be planned early on and the associated responsibilities must be defined.

II. Additional explanation

In practice, one problem that is often encountered is that, despite high standards being applied, the work that is carried out still exhibits certain defects. This is why it is advisable to conduct comprehensive quality controls on the building.

Measuring for quality control purposes plays a key role in allowing the target values set at the planning stage to be verified to establish whether they have been achieved, as well as allowing this to be documented.

III. Method

Indicator 1: Quality assurance planning

- A quality assurance plan must be drawn up for the completed building, focussing on relevant measurements and on specifying the people responsible for the tasks

Indicator 2: Quality control measurements

- Measurements must be taken and the results evaluated and compared with the requirements by suitably qualified test bodies or experts
- The scope of the measurements taken should be proportional to the size of the building and should adequately reflect the objective of verifying the building's quality.

Indicator 3: Quality assurance for construction products

- Site management must be instructed based on the requirements lists drawn up for the construction products that are to be used on the basis of criteria ENV1.2, ENV1.3 and SOC2.1
- A continuous target/achieved comparison of the materials used (as required) must be conducted and the site management must produce documentation to this effect in the form of site inspection reports



Indicator 4: Mould prevention

- A ventilation programme tailored to the building situation has been drawn up and implemented in order to ensure that the building components are sufficiently dry



APPENDIX B – DOCUMENTATION

I. Required documentation

A range of different 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: Quality assurance planning

- The quality assurance plan must be submitted – including a schedule for the measurements and a definition of the responsibilities

Indicator 2: Quality control measurements

- A DGNB template must be used for each indicator to submit confirmation from the test body or expert that the measurements have been taken and that the relevant requirements have been fulfilled. Improvements or repair work may be necessary in order to fulfil the requirements; the effectiveness of this work must then be verified by means of corresponding measurements. There is no need to submit measurement results, measurement logs, any intermediate measurements, etc. to the DGNB certification body.

Indicator 3: Quality assurance for the construction products used

- Documentation must be submitted to the effect that the site management have been instructed in how to use and implement the requirements lists that have been drawn up for the construction products that are to be used
- Documentation must be submitted to the effect that the site management have conducted continuous target/achieved comparisons of the materials/products that have actually been used in the building with the requirements lists, along with documentation of the results by the site management in the form of site inspection reports

Indicator 4: Mould prevention

- Documentation must be submitted to the effect that a ventilation programme tailored to the context has been implemented in order to ensure that the relevant building components are sufficiently dry



APPENDIX C – LITERATURE

I. Version

Change log based on version 2018

PAGE	EXPLANATION	DATE
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II. Literature

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