



PRO2.1

Construction site / construction process



Objective

Our objective is to minimise negative impacts on the local environment during the construction phase. In order to achieve this, the contractors at the construction sites must be made aware of the relevant environmental issues and receive training in this area.

Benefits

Trained staff generally applies its knowledge to the everyday work and are also able to use this knowledge in the future to reduce the environmental impact of construction sites for other projects.

Contribution to overriding sustainability goals



CONTRIBUTION TO SUSTAINABLE DEVELOPMENT GOALS (SDGS) OF UNITED NATIONS (UN)

CONTRIBUTION TO THE GERMAN SUSTAINABILITY STRATEGY



Moderate

- 3.4 Reduce mortality from non-communicable diseases and promote mental health
- 3.9 Reduce illnesses and death from hazardous chemicals and pollution
- 12.5 Sustainably reduce waste generation

3.2.a/b Air pollution



Low

- 6.3 Improvement of water quality, wastewater treatment and safe reuse
- 12.4 Responsible management of chemicals and waste



Outlook

There are currently no plans to make any of the requirements in this criterion significantly stricter in the next few years. Ideally, this criterion will no longer be needed in a few years' time, when the addressed topics have become standard practice.

Share of total score

				SHARE	WEIGHTING FACTOR
Office	Education	Residential	Hotel	1.6%	3
Consumer market	Shopping centre				
Department stores	Logistics				
Production					
Assembly buildings					



EVALUATION

In order to minimise the impact on the local environment, four indicators are used to evaluate the extent to which measures reduce noise (indicator 1), dust (indicator 2), negative impacts on soil and groundwater (indicator 3), and waste (indicator 4) have been implemented on the construction site and how much training the contractors at construction site have received in this area. Measures to reduce noise and dust pollution that fall outside of the scope of the proposed topics can be credited as an alternative under the relevant innovation areas. Innovative concepts, construction methods and technologies that reduce the amount of waste generated can be credited with an additional 10 points by means of the "Waste prevention on the construction site" circular economy bonus. In this criterion, a maximum of 100 points can be achieved in total without bonus points, or a maximum of 110 points including bonus points.

NO.	INDICATOR	POINTS
1	Low-noise construction site	
1.1	Low-noise construction site concept A concept that is specific to the relevant trades was formulated	5
1.2	Training for the contractors Training provided to the relevant trades	10
1.3	Reviewing the implemented work Review/documentation provided for the work implemented	10
Re 1	INNOVATION AREA Explanation: Alternative innovative/new concepts, processes and technologies for significantly reducing noise pollution which construction site workers and the environment are exposed to can also be credited.	 As in 1
2	Low-dust construction site	
2.1	Low-dust construction site concept A concept that is specific to the relevant trades was formulated	5
2.2	Training for the contractors Training provided to the relevant trades	10
2.3	Reviewing the implemented work Review/documentation provided for the work implemented	10
Re 2	INNOVATION AREA Explanation: Alternative innovative/new concepts, processes and technologies for significantly reducing dust pollution which construction site workers and the environment are exposed to can also be credited.	 As in 2



3	Soil and groundwater protection on the construction site	
3.1	Soil and groundwater protection concept Soil protection concept was formulated for the relevant construction site installations such as containers and construction machinery; concept is integrated accordingly into tender specifications	5
3.2	Training for the contractors Training provided to the relevant trades	10
3.3	Reviewing the implemented work Review/documentation provided for the work implemented	10
4	Low-waste construction site	
4.1	Low-waste construction site concept A concept was formulated to prevent waste on the construction site	5
4.2	Training for the contractors Training for those involved in construction process focussing on the issues of waste prevention and sorting or commissioning waste logistics specialists	10
4.3	Reviewing the implemented work Review/documentation provided for the work implemented	10
4.4	CIRCULAR ECONOMY BONUS – WASTE PREVENTION ON THE CONSTRUCTION SITE Explanation: Innovative/new concepts, construction methods or technologies that significantly reduce the amount of waste generated are used on the construction site.	 +10



SUSTAINABILITY REPORTING AND SYNERGIES

Sustainability reporting

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NO.	KEY PERFORMANCE INDICATORS (KPIs)	UNIT

Synergies with DGNB system applications

- **DGNB RENOVATED BUILDINGS:** Some of the aspects of indicators 1, 2, 3 and 4 can be used in criterion PRO2.1 from the scheme for renovated buildings.
- **DGNB DISTRICTS:** There are similarities with criterion PRO1.8 from the schemes for urban districts and business districts.



APPENDIX A – DETAILED DESCRIPTION

I. Relevance

Building sites and building processes pollute the local environment through noise, dust, and dirt. General efforts to minimise the impact of dust and noise on the local environment will promote good health and foster greater acceptance from everyone directly affected by the works of the construction site.

This, in addition to eliminating waste and closing material cycles, plays a key role in achieving sustainability and in climate protection. It is therefore important to put the right conditions in place to facilitate effective recycling of construction waste and, in particular, to minimise mixed waste.

II. Additional explanation

Indicator 1: Low-noise construction site

Noise has a considerable impact on the quality of life of humans and animals. Permanent noise exposure can lead to overstimulation of the nervous system which is harmful to health. In areas with high building density and high infrastructure standard, building noise is the most significant source of noise after traffic. According to the legal requirements (in Germany: Federal Control of Pollution Act) each building site should be planned, set up and operated in such a way that the building noise does not exceed the general noise level or is reduced through suitable measures.

Indicator 2: Low-dust construction site

"Dust" is defined as solid suspended particles in air, or gases, or their residue. As a rule, dust develops on building sites through the processing of building materials from a wide range of activities. Depending on the material composition and grain size of the dust, serious (consequential) damage may be caused to health.

Measures to prevent dust therefore protect all people who work in a construction site or live adjacent to it. In addition, the environment must also be safeguarded from substance related damage.

Indicator 3: Soil and groundwater protection on the construction site

Soil and groundwater must be protected against harmful substances and mechanical influences.

Under normal working conditions, chemical effects resulting from work processes can lead to gaseous, liquid, and solid substances ending up in the soil. Therefore, the aim should be to return the soil to its original state following the construction work, or to deal with the accumulated pollution where necessary. When doing so, care should be taken to protect developed soil layers.

Indicator 4: Low-waste construction site

If buildings are erected, renovated, converted or demolished then building rubble, excavated material, residual material, packaging, and wood waste will accumulate. The locally specified waste regulations requirements (in Germany) state how construction waste is to be handled: It should be prevented or recycled. Unavoidable waste and waste which cannot be recycled must be dealt with in an environmentally friendly way.

The objective is to separate the waste materials on the construction site – a necessary step for recycling that effectively recovers the materials' value. Separation eliminates mixed waste, making it the most commercially viable and environmentally responsible – that is to say, the most sustainable – solution for unavoidable waste materials.



III. Method

Indicator 1: Low-noise construction site

A noise prevention concept must be developed for and implemented at the construction site. The noise prevention concept should incorporate the use of low-noise machines approved by appropriate eco-labels (e.g. in accordance with the Blue Angel requirements RAL-UZ 53) or low-noise construction techniques. A schedule for works involving excessive noise should also be outlined and taken into consideration during protected periods. The contractor should be educated on the noise prevention concept, and its implementation has to be checked.

Indicator 2: Low-dust construction site

Machines and appliances are provided with an effective suction system. Dust must be captured at the point of development as much as possible and disposed of without any danger. The scattering of dust onto unpolluted work areas is prevented as much as technically possible. Dust deposition must be avoided. Damp or wet processes, or suction processes could be carried out for rectification.

Installations to separate and capture dust are in line with the current state of technology. These installations are regularly checked and subjected to maintenance work. The legal requirements are met through these measures. The contractor should be educated on the dust prevention concept, and its implementation has to be checked.

Indicator 3: Soil and groundwater protection on the construction site

It is particularly important to protect natural, undisturbed soil layers. Valuable soil or biotopes on the construction site can be protected, for example, through fenced-off protection areas that people cannot access. Valuable topsoil layers can be shifted and the piled-up soil (excavated soil) can be used for planting during the construction phase.

The contractor should be educated on the soil and groundwater protection concept, and its implementation has to be checked.

To protect the soil and groundwater against the ingress of contaminants, substances that pollute soil, water and the environment must be avoided. To this end, the designation "environmental hazard" described in chemical regulations (EC-Regulation No 1272/2008, which replaces the obsolete EU Directive 67/548/EEC) can be used as an exclusion criterion for tender documents.

In accordance with chemical regulations, materials that are hazardous to the environment must be identified by the GHS-symbol (GHS09 – Environmental hazard) shown below on the container and the safety data sheet as a minimum.



Construction materials that are hazardous to the environment should be avoided. This applies in particular to areas of the construction site at the edges of water bodies and in water protection zones.

For hazardous but unavoidable construction materials, such as uncured epoxy resins, measures must be taken at the construction site to ensure that these substances do not pollute the environment.



Indicator 4: Low-waste construction site

In addition to complying with the statutory minimum requirements of the local waste regulations, a concept must be developed to eliminate construction site waste.

The contractor is trained in waste separation. The correct separation of materials and the use of the collection points are checked.



APPENDIX B – DOCUMENTATION

I. Required documentation

Examples of possible evidence include the following items. The documentation submitted for the evaluation of individual indicators should comprehensively and clearly demonstrate compliance with the relevant requirements.

In general, tender documents and other types of documentation must address the following measures:

- Noise protection measures
- Dust emission protection measures
- Soil and groundwater protection measures

In addition, site facilities plans which provide information regarding waste disposal concepts, noise control measures and soil and ground water protection measures must be verified.

Indicator 1: Low-noise construction site

- Tender documents
- Detailed noise prevention concept
- Measurement logs of the noise level during the construction phase
- Photo documentation
- Site inspection reports
- List of construction machines used plus documentation of the noise level in relation to the requirements in accordance with the RAL-UZ-53 or comparable labels (see also the Directive 2000/14/EG)
- Documentation of training/instruction provided to the relevant construction site workers

Indicator 2: Low-dust construction site

- Tender documents
- Site inspection reports
- List of low-dust construction machinery and equipment used
- Documentation of training/instruction provided to the relevant construction site workers

Indicator 3: Soil and groundwater protection on the construction site

- Tender documents
- Soil protection concept for protecting natural, undisturbed soil layers
- Construction site facility plans, particularly regarding paths, roads, entrances and the like
- Site inspection reports
- Requirements regarding handling of construction chemicals that are hazardous to soil and water
- Photo documentation showing how substances that are hazardous to the environment are stored
- Documentation of training/instruction provided to the relevant construction site workers



Indicator 4: Low-waste construction site

- Tender documents
- Construction site facility plans
- Detailed waste disposal concept
- Site inspection reports
- Photo documentation
- Documentation of training/instruction provided to the relevant construction site workers

or alternatively

- Contract with a waste specialist
- Declaration/explanation by the waste specialist



APPENDIX C – LITERATURE

I. Version

Change log based on version 2018

PAGE	EXPLANATION	DATE
615	General: scheme “assembly buildings” has been added	16.09.2021

II. Literature

- Sustainable Development Goals icons, United Nations/globalgoals.org

Indicator 1: Low noise construction site

- RAL-ZU 53. Basis for ecolabel criteria. Low noise construction machines. RAL and Federal Environmental Agency. April 2011
- Blue Angel - The German Ecolabel - RAL-UZ-53:
 - Low Noise Construction Machinery
<https://www.blauer-engel.de/en/products/business-municipality/baumaschinen>
 - Basic Award Criteria, Edition February 2015
<https://produktinfo.blauer-engel.de/uploads/criteriafile/en/DE-UZ%2053-201502-en%20Criteria.pdf>
<https://www.blauer-engel.de/en/node/823>
- 2000/14/EC. Directive concerning sound emissions which are harmful to the environment for devices and machines intended for use outside (Outdoor directive). European Parliament and the Council of 8 May 2000. May 2000

Indicator 3: Soil and groundwater protection on the construction site

- Regulation (EC) No 1272/2008 of the European Parliament and of the Council. December 2008:
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1272&from=en>
- Translation and explanation of R-phrases: <http://schoolscout24.de/cgi-bin/keminaco/rspinput.cgi>
- Principles for the assessment of building products on the soil and ground water draft. Centre of Competence in Civil Engineering - DIBt -, Berlin. May 2008 (available in English)
- EN ISO 14001. Environmental management systems - requirements with instructions on application. Berlin: Beuth publisher, November 2009

Indicator 4: Low waste construction site

- State waste regulations
- Respective regional by-laws