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DGNB & Co. – the similarities and differences between building certification systems

For many people, the three leading international systems for certifying sustainable buildings – DGNB, LEED and BREEAM – are sometimes used in the same breath and the public perception is that they're largely interchangeable. But if you take a closer look at the obvious overlaps between the systems, there are actually a number of fundamental differences, so it's not quite right to consider them synonymous.

For about a quarter of a century, there has been a worldwide movement dedicated to the promotion of sustainable building. A large number of non-profit organisations, state programmes and private initiatives are now committed to greater sustainability in the built environment. Over the years new organisations have been set up in more than 100 countries, such as the Green Building Councils, which provide the movement with a platform on a national level. In Germany, it is the German Sustainable Building Council, or DGNB.

Certifying buildings is an instrument that is established worldwide as a means of evaluating and thus also promoting sustainable building. The DGNB believes that certification should address the key factors that determine sustainable construction methods and make these measurable, comparable and thus available on demand for customers. At the same time, certification should provide incentives to promote more sustainability in building environments during the planning and construction phases of properties. There are many projects, particularly larger ones, where certification is considered a given and seen as key tool of management.

On an international level, there are a large number of certification systems spanning a diverse array of approaches and underlying objectives. The system in the UK, the Building Research Establishment Environmental Assessment Methodology (BREEAM), was the first of its kind when it was introduced in the 1990s. A variety of other countries have also developed their own certification systems. These include for example the American LEED system (short for Leadership in Energy and Environmental Design), the French HQE (Haute Qualité Environnementale), CASBEE (Comprehensive Assessment System for Building Environmental Efficiency) in Japan and the Green Star system in Australia.

The DGNB System has existed in Germany since 2009. It was developed by a team of leading experts from the German construction and real estate industry, some of whom went on to found the German Sustainable Building Council – DGNB e.V. – in 2007. The motivation for developing its own new system stemmed from a number of issues, many of them specific to the German construction industry. It was felt that standard certification systems were not doing enough to address key areas. These included, for example, the evolved understanding of planning and building culture in Germany, as well as the strong degree of technical know-how focusing on assessing and validating actual quality. The underlying approach for assessing the sustainable qualities of buildings was developed jointly by the DGNB and the Federal Ministry of Transport, Building and Urban Development at the time (BMVBS). The idea was to bring assessment in line with political persuasion and goals in Germany. The BMVBS had established the basis for assessing federal buildings (BNB System). The DGNB on the other hand

developed its own complete certification system, resulting in a wide variety of schemes for different buildings and districts.

The overlaps and differences between certification systems and the features that make the DGNB System special

1) Sustainable vs green

The first difference between the different systems and their underlying approaches is reflected in the name. The international concept of a 'green building' is applied differently by the DGNB by calling it a 'sustainable building'. This is because the DGNB feels the word 'green' does not go far enough. It has close associations with energy efficiency and the ecology, which should be just one aspect of a sustainable approach to building. As a result, the DGNB System is based on an understanding of sustainability that pulls together three factors: ecological, economic and social.

Not even considering economic aspects – or only making them subordinate, as is the case with LEED, which is more about focusing on energy issues – goes against the grain of this understanding. The DGNB believes that a building should always be planned and constructed such that

- 1) it is environmentally sound and conserves resources during construction and in use
- 2) it makes economic sense, saves money in the long term and does as much as possible to minimise investment risk
- 3) the main emphasis lies in people, by promoting health and comfort, plus the quality of indoor and outdoor spaces, and that this makes it more probable that a building will be used for longer
- 4) as much as possible is undertaken to consider factors relating to the climate and culture, and that a building is adapted accordingly so that it reflects local needs and the architecture of a culture.

There are three further factors looked at by the DGNB System, and these are also an essential component of sustainability when it comes to planning, constructing and operating a building: technical quality, process quality and site quality. To obtain certification on the very highest level with the DGNB, a building must achieve excellent scores in all topics. This allows the DGNB to ensure that a certified building always reflects the most holistic and sustainable approach possible.

2) Life cycle costing and life cycle assessment

One fundamental concept underlying the DGNB System is that a building should reflect a strict regard for its overall life cycle and consideration should be given to the entire value chain during construction. This begins with the extraction of raw materials and ends with the dismantling of a building and the recycling of components. For the majority of schemes the DGNB uses a reference building life of 50 years. This approach to considering the life cycle of a building transcends the entire DGNB System and all sustainability factors. In terms of environmental quality, a building is required to have a good score for the life cycle assessment (LCA). This involves ascertaining the overall use of resources and impacts on the environment, for instance emissions that cause environmental damage. This factor is assessed for the entire life cycle. It therefore takes into consideration whether higher outlays during construction can be amortised because a building performs better (in environmental terms) during use.

Specifically assessing building materials and harmful substances in a building involves looking at the entire value chain – from the impact of actual manufacture to installation, use and operation, and material disposal after use. When it comes to economic factors, the DGNB certification covers the cost of energy and water, construction costs and follow-on costs – for example for any cleaning, maintenance or renovations that may be required in the future but can already be estimated today. The method used for this assessment is Life Cycle Costing (LCC). The process quality highlights the importance of consistently applying life cycle principles over time. This involves laying down requirements for each relevant factor from demand planning to disposal.

Consistently focusing on the overall life cycle of a building and how the outlined methods are applied is considered an intrinsic part of the DGNB System from the very beginning. Other certification systems in the market continue to underemphasise certain factors in this regard. By consistently applying its life cycle methods, the DGNB has successfully encouraged a number of manufacturers to take action, for example by systematically issuing information on the environmental impact of their products with documentation like the Environmental Product Declaration (EPD). Building owners find the results of a DGNB assessment useful for long-term decision-making and introducing effective measures; project managers and investors use the life cycle sustainability figures when they talk to potential customers.

3) Overall performance vs the evaluation of individual measures

Whether it makes sense to construct a building this way or that way depends on a whole variety of different factors, and these are often influenced by the context within which the building is needed or constructed. In this respect, the DGNB System works very differently to other certification systems because it is not a rating tool that looks at measures taken individually. Instead, the DGNB System lays emphasis on trying to enhance the overall performance of a building. To this end, results are assessed according to the actual impact on a building and not just whether a checklist can be ticked off because measures have been implemented. The focus throughout – for all criteria – lies in the overall goal that needs to be achieved. As a result, it is the responsibility of investors and architects to find an appropriate solution or identify the best course of action, and this provides enough leeway for people to come up with new and innovative ideas. Assessment of the life cycle costs of a building leaves room for additional investments in innovation, which makes the evaluation fair by acknowledging people's willingness to try something different.

The different approaches are also reflected in the life cycle assessment. With the LEED system, simply carrying out a life cycle assessment is rewarded, whereas the DGNB takes a more integrated approach, seeing it as a means for determining the scores that will be used for certification based on certain benchmarks. A similar approach is taken with EPDs. LEED gives a reward just for pulling together EPDs, irrespective of which products they relate to and how they are applied to a building. With the DGNB System, EPDs are used to ascertain fundamentals in order to collect the right information for a life cycle assessment – so that it provides the closest possible reflection of reality.

There are also differences in how evaluations are used for each criterion. With LEED and BREEAM, evaluations are based on whether something 'is or is not fulfilled', whereas the DGNB System uses more differentiation with levels based on targets, reference values and limits. As a result, the DGNB System ensures that individual factors that drive sustainability are not overlooked. It also

acknowledges whether a project works through the criteria in a meaningful way and does not just try to maximise scores.

4) Adaption of requirements vs one fits all

To date, the DGNB System has been used to certify buildings in more than 20 countries worldwide. Importantly, especially compared to LEED, the DGNB adapts the criteria referred to in requirements according to regional conditions and circumstances. For example, these may be regulatory requirements, the specific nature of a market or the regional climate. For the latest Version 2018 of the DGNB System for new buildings, the DGNB is currently drafting differentiated guidelines for using the system in international markets. In concrete terms, this involves adjusting certain reference values and limits laid down within individual criteria so that there are starting points or comparative values that match the regional context. Nonetheless, if achieving targets could result in a maximum score for individual indicators, these targets are kept the same on an international level, even if there may be different ways to hit these targets. As a result, all buildings that are certified under the DGNB System depend on higher target values. Not only does this make it possible to draw comparisons beyond the individual borders of countries, it also makes a positive contribution to the environment we build around ourselves on a more holistic level.

5) The logic behind the awards

There are also differences between certification systems when it comes to the names for different award levels. The DGNB and LEED bestow platinum, gold and silver awards (plus bronze for the DGNB for existing buildings), whereas BREEAM has outstanding, excellent and very good for its top awards. For all approaches, the scores achieved for a development depend on total performance for the different criteria used under each system.

Even if the terms used for the DGNB and LEED systems are based on the same logic, the results achieved through certification are not directly comparable because they are based on different criteria and target values. The DGNB System is considered the most comprehensive method worldwide. Therefore a DGNB certification with an award on the highest level is the best way to document high quality in terms of sustainability. Moreover, the DGNB is the only system to provide a clear overview of achieved certification results by producing diagrams and graphs that can be shared with others.

6) Non-profit vs. private

The DGNB is a registered association (a German 'e.V.') and thus a non-profit, non-governmental organisation. It has roughly 1,200 members who are committed to the promotion of sustainable building. This is partly achieved through the work of the DGNB Academy, which offers experts throughout the world training and continuing professional development options in the field of sustainable building. It also promotes sustainable building through its certification system, an important instrument in translating concepts of sustainable building into planning and construction practice. All of the methods anchored within the DGNB System revolve around many years of honorary work and the commitment of hundreds of leading experts involved in all fields of the German construction and real estate industry. It is these experts who ensure that the requirements outlined by different criteria are continually kept in line with latest developments and that they also take any new issues into account, especially if these have the potential to trigger new sustainability approaches. The actual task of

certification is carried out by the limited liability company DGNB GmbH, a wholly owned subsidiary of the association.

BREEAM was introduced following development work carried out by the British Building Research Establishment (BRE). Its work is implemented by private organisations on a domestic level, both in Germany and other countries, through a licence agreement. The LEED system is offered by the U.S. Green Building Council (USGBC), whose international sales activities are partly coordinated and carried out by national spin-offs of Green Building Certification Inc. (GBCI). GBCI is a for-profit subsidiary of the USGBC, which offers not only LEED certification but also a variety of other certification methods such as WELL, PEER and Parksmart. These were not developed by the USGBC and have not been developed any further; in part they were acquired.

7) Scheme diversity and system variety

All certification systems have one thing in common: they offer a whole host of options when it comes to planning, new buildings, existing buildings, the running of buildings and renovation. They also have different schemes such as offices, industrial buildings and educational buildings. This is important when it comes to using certification as a tangible tool of planning and optimisation because without different options, it would not be possible to apply appropriate criteria or benchmarks to the right projects. Depending on the type of building, different criteria will be looked at, or other indicators will be used as a basis for the individual criteria. The actual number of schemes offered is different for each system. Options and products are also regularly overhauled and updated. For example, the DGNB has had a certificate for buildings in use since 2016. It also offers a new and completely revised system for renovated buildings. On top of this, there are now also new usage profiles for interiors, sports halls, resorts and vertical cities.

One thing that makes the DGNB different is that all the updates and overhauls are, as best as possible, used to harmonise individual system options and make it possible to generate synergies between the different types of certification. For instance, Version 2018 of the new buildings certificate is valid for nine different types of building uses. Coherence between the different systems used for buildings in use, interiors and districts has also been significantly improved. Recently, a new process called DGNB Flex was introduced. This method makes it possible to create an individual certification template for development projects for which no specific scheme yet exists.

8) Time and money

Version 2018 of the DGNB System comprises 37 criteria. This makes the DGNB System significantly leaner than comparable versions of LEED (52 criteria) or BREEAM (57 criteria). It also highlights the underlying aim of the DGNB objectives in only dealing with topics that really help improve the quality of a building. Because international projects involving the DGNB revolve around regional certification requirements, a variety of documentation requirements are not even necessary in some areas; these are sufficiently addressed by the regulatory requirements of individual countries. Overall, the DGNB tries to align processes to documentation that would already be required for the construction process anyway. This is in order to avoid making use of the certification system unnecessarily complicated.

For all systems, the cost of certification is broken down into a fee for consultation, the actual certification fee for conformity checks and, where applicable, any additional costs for simulations,

quality evaluations and similar services. The certification fee itself depends on the size of a building and different schemes. A major share of costs relates to the services provided by the individual auditors or assessors, who are required to provide support for the project and the submission of documents and applications. The scale of these fees is entirely individual and based on the extent to which auditors are also asked by building owners to provide advisory services.

Another difference between the systems lies in the training specialists have received. With the LEED system, experts can gain accreditation through self-study. At the DGNB, auditors go through different modules of practical training run by the DGNB Academy. To keep their licences for auditing DGNB projects up to date, they must also take part in regular top-up training.

9) Measuring indoor air quality

Indoor air quality is applied by the DGNB System as an all-or-nothing criterion – if it is not met, a building will not be certified, independent of other certification scores. Within four weeks of the final completion date of a building, measurements must be taken of any harmful substances in the air. The idea of including this test in the DGNB System is to do everything possible to ensure that a finished building really does adhere to quality criteria and that the products documented in the building plans really were used as indicated. The DGNB has the strictest indoor air quality criteria in the world, and this underscores the importance of air quality to the health of people who use a building. The other certification systems do not require measurements to be taken of indoor air quality.

There is a new system called WELL, which is being marketed and sold by GBCI, and this does look at the issue of 'Health & Well-Being'. The system is extremely broad, however, and thus far from cheap. It also touches on a variety of factors that are already sufficiently covered by statutory standards in the German market and includes a number of criteria that do not relate to the building itself. The DGNB feels that it makes no sense to certify a building separately on aspects relating to health and well-being because sustainability is an issue that has to be considered as part of a holistic, integrated process.

10) Design quality and Baukultur

As the first and only worldwide provider of certification systems for sustainable buildings, the DGNB is committed to promoting the quality of architecture in the planning and construction process, plus a quality factor called Baukultur. The DGNB has been working with the Federal Chamber of Architects (BAK) under the expert guidance of the Association of German Architects (BDA) to develop a methodology that makes it possible to assess the quality of architectural design and the Baukultur. In addition to the DGNB Certificate, the DGNB also bestows a separate award for new buildings or developments of existing buildings. Developments that reflect outstanding quality in terms of architecture and Baukultur receive a DGNB Diamond. These criteria are assessed by a design commission. The DGNB also has options for developments that are still in the early stages of planning so they can receive individual advice or recommendations from this auditing commission. The overarching aim with this initiative is to promote the architectural culture and the quality of Baukultur in the built environment. Thus the DGNB provides tangible support with implementation and considers design criteria and Baukultur to be a central factor for holistic sustainability. It makes a fundamental contribution to acceptance among the people who use a building in the long term.

11) Innovation capacities

The DGNB believes that certification should provide an incentive for building owners, architects and planners to systematically improve the quality of buildings by considering sustainability issues. Ensuring people have enough freedom to think innovatively and that they are open to new technology is an important part of certification systems in order to pave the way for buildings that are genuinely focused on future needs. When the DGNB introduced Version 2018 of its system, it also introduced so-called innovation capacities. The aim is to offer certain alternatives within audits in order to acknowledge innovative solutions that may not yet be covered by the criteria. This approach to innovation is an important difference between the DGNB and other providers of certification systems. They have included innovation criteria by using totally separate measures that are not linked to the other sustainability criteria and are honoured with extra points.

12) The circular economy

Encouraging people to think consciously about how they use resources has been a central issue for the DGNB from the very beginning. The DGNB is committed to ensuring that material cycles are in place so that products can be re-used or reclaimed. This idea can be incorporated into new business models and become a part of responsible, future-centric product development. This makes the DGNB System the first and until now the only system of its kind to make circular economy principles an assessable and measurable aspect of buildings. To promote the use of new methods, such solutions are rewarded with bonuses, which have a positive impact on certification outcomes.

13) Sustainable Development Goals

The United Nations has issued Sustainable Development Goals (SDGs) as a central pillar of its Agenda 2030. The aim is to provide 17 specific and meaningful targets aimed at shaping the future development of our planet, encouraging people to think again and thus paving the way for life in a sustainable world. The DGNB supports the UN objectives and wants to encourage others to make a tangible and positive contribution to achieving these targets through certification. To link sustainable building methods to the SDGs and make any connections transparent, all of the criteria in Version 2018 were examined in terms of their pertinence to the UN goals and this is highlighted as necessary. The result: 13 of the 17 SDGs are already directly or indirectly addressed by the criteria of DGNB certification. Accordingly, in future all projects that gain DGNB certification will include a statement on the extent to which they make a contribution to fulfilling the SDGs. This makes the DGNB System a pioneer in transferring the internationally applicable SDGs to the building sector.

14) EU-conformity

Ever since it was introduced, the DGNB System and the methods it is based on have been unlike any other certification system in the way they interpret European sustainability standards. Every aspect of the system revolves around prevailing standards and legislation throughout the EU. This means that all projects certified by the DGNB go a long way towards safeguarding their own relevance in the future. One example of this is the life cycle assessment of entire buildings. This is captured in the DGNB System in accordance with EU standards and ranges from how materials are produced to final deconstruction. It's important that scientifically defined benchmarks are used to calculate and optimise impacts on the environment. The EU has reworked some sustainability indicators in its common

framework for the communication of sustainability services – Level(s) – and these are now included in Version 2018 of the DGNB System in order to highlight conformity with the DGNB criteria.