



**STATUS REPORT ON DGNB CERTIFICATION OF  
HOSPITALS - DNV, GØDSTRUP**

**REPORT AUGUST 2013**

**DRAFT**

## **STATUS REPORT ON DGNB CERTIFICATION OF HOSPITALS FOR DNV, GØDSTRUP**

**REPORT AUGUST 2013**

**PROJECT NUMBER: 075-1101**

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## **1 Introduction**

Drees & Sommer has by the Project Secretariat at DNV, Gødstrup been given the task of preparing a status report regarding DGNB certification of hospitals.

DNV, Gødstrup need a status report on DGNB as part of the decision making background material to Region Midt, in order for Region Midt to decide whether to certificate the new hospital in Herning according to DGNB or not. The question is - does it make any sense to certify a hospital with the DGNB system in Denmark?

DGNB is a German green building certification system, developed to design holistic sustainable buildings. The certification system is in some extend implemented in Denmark and a range of new office buildings has already been certified with great success. Currently “new health care buildings” are not a part of the Danish DGNB certification program, but this is under development and already at the end of 2013 it is the intention that pilot projects regarding certifying Danish healthcare buildings is initiated.

The report contains information of the possibilities and the current status to certify hospital buildings according to the DGNB green building rating system and includes also information from “learnt lessons” from pilot projects in the first application phase in Germany.

Furthermore this report will give arguments in favor of and shows the benefits that can be achieved by a DGNB green building certification. The report contains a range of best praxis examples from German DGNB certified projects and analyses of the values gained (and disadvantages) when using DGNB as a goal during the design process.

The intention of this report is to strengthen the basis of decision, regarding whether or not to choose to DGNB certify the new hospital DNV, Gødstrup.

## **2 Opportunities for the certification of healthcare buildings in accordance to the DGNB system**

### **2.1 Current Status**

The health and wellbeing of the patient are the focal point in hospitals and healthcare centers. These aspects are not solely influenced by medical factors and technologies, but also by the quality of the building in which the patients are treated.

For newly built healthcare buildings DGNB developed in the year 2012 the usage scheme New Construction Hospitals 2012 and tested it on selected projects within the context of a first implementation phase. The five projects which underwent the first implementation phase include:

- The new construction of the Glantal-Klinik Meisenheim (Rheinland Pfalz)
- The new construction of the Helmut-G.-Walther Klinikums Lichtenfels (Bayern)
- The Diakonissen-Stiftungs-Krankenhaus Speyer (Rheinland Pfalz)
- systelios Gesundheitszentrum Siedelsbrunn
- Schönklinik Prien am Chiemsee (Bayern)

With their participation in the DGNB certifying process, these projects obtained a pioneering role and bestowed on their planning and construction work special quality and depth of focus. The first implementation phase for the usage scheme “New Construction Hospitals, Version 2012” is completed.

Within the context of the first implementation phase, the DGNB usage scheme underwent a stringent process in which the criteria were continuously further developed. The benchmarks were tested in practice on the previously named projects. Thus, the obtained experience values and results guarantee the high quality of the rating system during its market launch which is planned for autumn of this year.

The DGNB is planning an introduction of the usage scheme New Construction Hospitals 2013 in September 19<sup>th</sup> within the context of the World Green Building Week in Darmstadt.

Simultaneously the criteria were already forwarded to the Green Building Council Denmark (DK-GBC) in order to be translated and adjusted to the Danish system.

The DK-GBC has a high demand for certification of healthcare buildings in Denmark as well, since the state provided an according budget for new buildings.

Therefore, healthcare constructions in Denmark can be registered as of now on at the DK-GBC in Copenhagen.

## **2.2 Brief description of the Main Criteria of the DGNB System “New Healthcare Buildings”**

The DGNB System provides an objective description and assessment of the sustainability of buildings and urban districts. Quality is assessed comprehensively over the entire life cycle of the building. The DGNB Certification System can be applied internationally.

Due to its flexibility it can be tailored precisely to various uses of a building and even to meet country-specific requirements.

The outstanding fulfilment of up to 50 sustainability criteria from the quality sections ecology, economy, socio-cultural aspects, technology, process work flows and site are certified. The system is based on voluntarily outperforming concepts that are common or usual today.

The individual quality sections are weighted as follows:

- Environmental Quality: 22,5%
- Economic Quality: 22,5%
- Socio-cultural and Functional Quality: 22,5%
- Technical Quality: 22,5%
- Process Quality: 10%
  
- Site Quality: separate assessment



To determine the total performance level, the results of the different quality sections (except the site quality) are summed up together according to the above listed weighting.

If a performance requirement is met, the DGNB awards the DGNB certificate in bronze, silver or gold.

Due to hospitals' varied use types, the certificate includes many uses. The scheme allocates different weightings to examination, therapy, and waiting areas as well as administrative areas or commercial areas such as cafés. The therapeutic aspect is particularly important for hospitals. Therefore adjacent grounds or hospital gardens are included in the assessment. The scheme is available both for medical and psychosomatic clinics.

In the following all criteria which can be found in the DGNB system "New Healthcare Buildings, 2013" are listed and generally explained:

Environmental Quality		
ENV 1.1	1, 2, 3, 4, 5	Life Cycle Assessment
ENV 1.2	6	Local Environmental Impact
ENV 1.3	8	Environmentally Friendly Material Production
ENV 2.1	10, 11	Primary Energy Demand
ENV 2.2	14	Drinking Water Demand and Wastewater Volume
ENV 2.3	15	Land Use

Within the quality section "Environmental Quality", on the one hand the environmental impacts of the building products and building materials are evaluated within a Life Cycle Assessment, and on the other hand the use of low-emission building products and building materials, such as wood from sustainable forestry, is encouraged. Moreover, water saving drinking and wastewater technologies as well as the use of previously developed land are evaluated positively.

Economic Quality		
ECO 1.1	16	Building-Related Lifecycle Costs
ECO 2.1	17	Value Retention, Suitability for Third Party Use

The profitability of the building will be checked and evaluated within a Lifecycle Cost Calculation (LCC). Besides the building costs, the operating, energy as well as maintenance and replacement costs are also included. Moreover, the space efficiency and convertibility of the building within the context of third-party usability are evaluated.

<b>Sociocultural and Functional Quality</b>		
SOC 1.1	18,19	Thermal Comfort
SOC 1.2	20	Indoor Air Quality
SOC 1.3	21	Acoustic Comfort
SOC 1.4	22	Visual Comfort
SOC 1.5	23	User Influence on Building Operation
SOC 1.6	24	Quality of Outdoor Spaces
SOC 1.7	25	Safety and Security
SOC 2.1	26	Handicapped Accessibility
see ECO 2.1	27	Efficient Use of Floor Area
see ECO 2.1	28	Suitability for Conversion
SOC 2.2	29	Public Access
SOC 2.3	30	Cycling Convenience
SOC 3.1	31	Design and Urban Planning Quality through Competition
SOC 3.2	32	Integration of Public Art

The comfort criteria which can be directly influenced by the patients, the staff of the visitors - heating, daylight, artificial light, and acoustic as well as the individual influence of the provided systems - will be evaluated in the quality section “Socio-cultural and Functional Quality”. Furthermore, the security of all persons in case of danger (accidents, fire etc.), the public accessibility, the sojourn quality inside and in the surroundings of the buildings, the bicycle comfort as well as the architectural design and the integration of art on the building are the focus of this quality section.

<b>Technical Quality</b>		
TEC 1.1	33	Fire Prevention
TEC 1.2	34	Indoor Acoustics and Sound Insulation
TEC 1.3	35	Building Envelope Quality
TEC 1.5	40	Ease of Cleaning and Maintenance
TEC 1.6	42	Ease of Dismantling and Recycling

The technical and functional quality is evaluated in the quality section “Technical Quality”. This refers to the implementation of fire safety, sound protection and buildings physics requirements as well as the ability to dismantle recycle or dispose of building products and building materials environmentally friendly at the End of Life.

Process Quality		
PRO 1.1	43	Comprehensive Project Definition
PRO 1.2	44	Integrated Planning
PRO 1.3	45	Comprehensive Building Design
PRO 1.4	46	Sustainability Aspects in Tender Phase
PRO 1.5	47	Documentation for Facility Management
PRO 2.1	48	Construction Quality Assurance /
PRO 2.2	50	Quality Control Measures
PRO 2.3	51	Systematic Commissioning

The planning and building processes, including adequate quality surveillance and an extended beginning of operation of the technical facilities and subsequent monitoring are evaluated in the “Process Quality”

Site Quality		
Site 1.1	56	Site Location Risks
Site 1.2	58	Public Image and Social Conditions
Site 1.3	59	Access to Transportation
Site 1.4	60	Access to Specific-Use Facilities

The site specific circumstances regarding infrastructural and transport qualities as well as the connection to urban water, gas, heating and telecommunication supply will be evaluated in the quality section “Site Quality”.

## **2.3 Minimum Requirements of the DGNB System “New Healthcare Buildings”**

### **2.3.1 Permitted activity areas:**

The following activity areas inside a hospital can be certified

- Examination and treatment
- Nursing
- Administration
- Social services
- Supply and disposal
- Research and teaching
- Other (ambulance service, child care, living, etc.)

Furthermore, a hospital which is to be certified must cover at least the activity area “examination and treatment”.

The above mentioned activity areas can be concentrated in one building or spread out onto different buildings.



### **2.3.2 Template of an operation and security concept**

The basis of the rating of hospitals is the operation and security concept (working safety). Without such a concept a hospital cannot be evaluated. For tenant buildings, the operation and security concepts must be developed based on a subordinate usage (tenant target group).

### **2.3.3 Template of a principle guideline of the operator**

The recovery of the patient is the most important aspect regarding sustainability. The interaction with the patient, workers and visitors required a definition in the concept of the operator.

In addition, the following criteria-specific minimum requirements have to be applied:

### **2.3.4 Compliance with the requirements for indoor hygiene requirements**

A TVOC-concentration of more than 3.000 m/m<sup>3</sup> or a formaldehyde concentration of more than 120 m/m<sup>3</sup> or an exceedance of the RW II-values (Richtwertempfehlungen der Adhoc AG IRK/AOLG) are not permitted. Buildings, in which values above these maximal values are measured, are excluded from the certification.

### **2.3.5 Compliance with the requirements for freedom from barriers**

For the assessment of the freedom from barriers, the requirements from the user groups patients and staff have to be differentiated. In addition, the requirements of the visitors also have to be included in the evaluation.

The personnel area in the administration area, all patient room areas, examination areas and areas in the building in which patient sojourn and movement is to be expected as well as all indoor visiting areas on principle have to be designed without barriers.

An area is in general accessible free of barriers if:

- one entrance to the building, part of the building, department can be reached threshold-free and has at least 90 cm clear width
- information for the operation (entrance, elevator) is offered in a two-sense-principle (visible, audible, tactile)
- the movement areas in front of the entrance door (and if necessary elevator) are at least 150cm x 150 cm big
- at least one sanitary room is also suitable for persons with physical disabilities

In general, outdoor facilities have to be included in the evaluation.

### **2.3.6 Compliance with the legal requirements**

The legal country-specific requirements have to be complied for the building which is to be certified.

This affects especially:

- Fire safety
- Sound protection
- Compliance with energy and building physics minimum requirements for the heating and humidity protective quality of the building envelope.

## **3 Experiences from the “First Application Phase” DGNB System “New Healthcare Buildings”**

### **3.1 Types of Projects**

Five hospitals participated in the first application phase for “New Healthcare Buildings”. Four of them have already been certified or pre-certified. Main facts about these hospitals are presented in the next pages.

## Glantal-Klinik Meisenheim



© Sander.Hofrichter Architekten

Type of certification:	DGNB Pre-certificate in Silver
Year of certification:	2012
Gross floor area (GFA):	7.894 m <sup>2</sup>
Costs:	40 Mio. €
Owner:	Landeskrankenhaus (AöR)
Architect:	Sander.Hofrichter Architekten
Type of new build areas:	The new building combines the areas that have been separated before. The new hospital includes: <ul style="list-style-type: none"><li>• 120 Beds for neurology, surgery and internal medicine</li><li>• 30 beds for patients in rehab</li><li>• Interdisciplinary department for primary health care</li><li>• Center for medical specialists</li></ul>
Advantages of Certification:	<ul style="list-style-type: none"><li>• Reducing costs for heat and electricity</li><li>• Enhance the comfort for patients and staff</li><li>• Casts a positive light on the hospital</li></ul>

## Helmut-G.-Walther-Klinikum Lichtenfels



Schuster Pechtold Schmidt Architekten

Type of certification:	DGNB Pre-certificate in Gold
Year of certification:	2012
Gross floor area (GFA):	14.512 m <sup>2</sup>
Costs:	114,3 Mio. €
Owner:	Helmut-G.-Walther-Klinikum GmbH Lichtenfels
Architect:	Schuster Pechtold Schmidt Architekten GmbH
Type of new build areas:	New construction of the whole building, including: <ul style="list-style-type: none"><li>• 4 operation tracts, intensive care, function diagnosis, endoscopy, internal medicine, gynaecology and mid-wifery, emergency hospitalisation</li></ul>
Advantages of Certification:	<ul style="list-style-type: none"><li>• High energy savings compared to the old building</li><li>• Sponsorship by the federal state Bayern (8,8 Mio €)</li><li>• Reduced CO<sub>2</sub>-Emissions</li><li>• Guaranteeing independent energy supply by using renewable energy systems</li></ul>

## Diakonissen-Stiftungs-Krankenhaus Speyer



sander.hofrichter architekten

Type of certification: DGNB Pre-certificate in Bronze

Year of certification: 2012

Gross floor area (GFA): 10.314 m<sup>2</sup>

Costs: 48,5 Mio. €

Owner: Ev. Diakonissenanstalt Speyer-Mannheim K.d.ö.R.

Architect: sander.hofrichter architekten

Type of new build areas: Because of the fusion of two hospitals in the City the construction of a new hospital was necessary in order to unite their separate hospitals. The hospital is an annex to the existing children's hospital. Main areas of the new hospital are:

- Ward block (5 floors)
- Functional areas for emergencies (2 floors)
- Geriatric day care unit
- Sleep laboratory
- Pain treatment centre
- Palliative care unit

Advantages of Certification:

- Being one of the first certified hospitals in Germany
- Increasing the work efficiency by having a special focus on guaranteeing short ways for the staff
- Comfortable atmosphere for staff as well as patients

### SysTelios Gesundheitszentrum, Wald-Michelbach



tionline.com

competi-

Type of certification:	DGNB Certificate in Silver
Year of certification:	2012
Gross floor area (GFA):	4719 m <sup>2</sup>
Costs:	Not known
Owner:	sys Telios Gesundheitszentrum Siedelsbrunn
Architect:	Dr. Reinhart Strümpfel + Lukas Reinhard   Strümpfel Architekten
Type of new build areas:	Private clinic dealing mainly with mental and psychosomatic problems. The existing house has been extended by two more houses containing 42 rooms each.
Advantages of Certification:	<ul style="list-style-type: none"><li>• Reducing operation costs by optimizing the energy consumption</li><li>• Creating a pleasant and comfortable atmosphere</li><li>• Having a building that fits to the therapeutic approach used in the clinic</li></ul>

## **4 Business Benefits of Green Hospitals by Target Groups (Hospitals Operators, Patients & Staff)**

### **4.1 Workplace Productivity and Wellbeing**

Hospitals that are built in accordance with the DGNB criteria contribute to increase staff productivity as well as the wellbeing for the patients, staff and visitors.

Optimizing the building layout to insure short distances between the workstations (e.g. patient rooms and treatment rooms) is one important component in this context. Short distances for the staff will save both time and energy.

Another main aspect is the creation of more comfortable indoor environmental quality in comparison to non-certified hospitals. Attributes of healthy indoor environments are high levels of natural daylight, appropriate levels and types of artificial light, use of materials with minimal toxins, appropriate outdoor air ventilation, thermal comfort and open and inviting spaces that increase interaction and physical movement.

These attributes increase the motivation of the staff as well as contribute to a higher productivity. The comfortable atmosphere does not only affect the staff but also the patients. Increasing their individual comfort can help them to recover as soon as possible.

For instance, in the publication „Economics of Biophilia“<sup>1</sup>, the authors highlight a number of reports showing the benefits of views to the outdoors and daylight across several sectors:

- The seminal study by Ulrich (1984) showing hospital stays reduced by 8.5% as well as supporting studies indicating faster recovery rates in rooms with windows views of nature
- Patients with a 22% reduced need for pain medication in rooms with bright sunlight

Other studies show that by an integral and sustainable design of buildings also the specific attributes such as mental fitness and memory, productivity and call processing are increasing. The figure below, taken from the report "The Business Case for Green Building" - published recently by the World Green Building Council (WGBC) - shows the net present value analysis of the operational cost and productivity and health benefits of certified buildings.

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<sup>1</sup> Terrapin Bright Green. (2012) The Economics of Biophilia: Why designing with nature in mind makes financial sense.

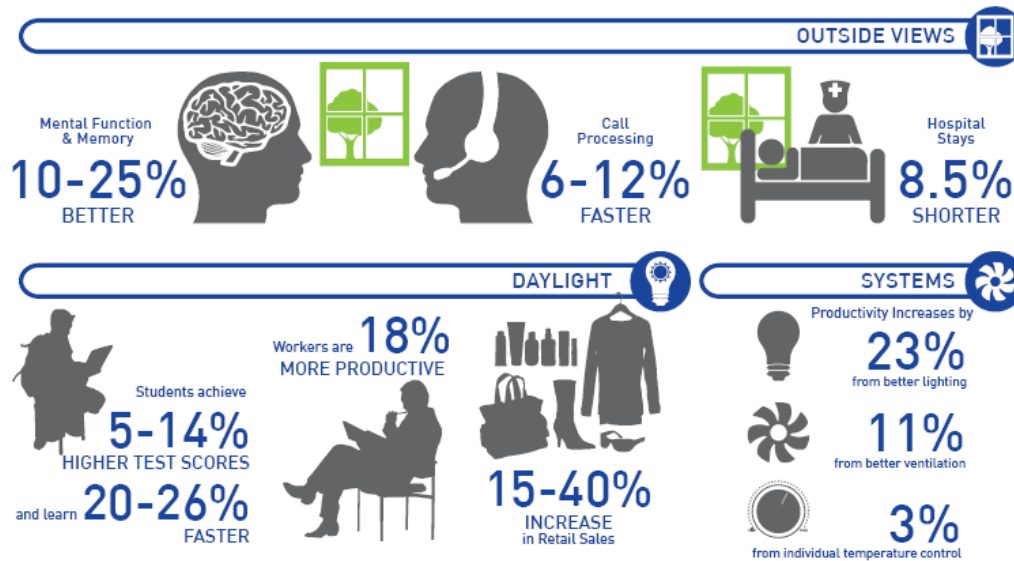


Figure 1: net present value analysis of the operational cost and productivity and health benefits of LEED certified buildings

As already mentioned above, for the recuperation and recovery of the patients it is of utmost importance that they feel comfortable in their rooms. For this, additional factors were incorporated into the evaluation – such as a visual cover which allows the patient to influence the room situation according to their idea of privacy.

For the first time in a DGNB usage scheme, the surrounding green areas also have an influence on the building. In healthcare buildings these are often featured as adjacent parks. Green roofs and walkable green patios for patients and visitors mirror roughly the reality of the clinic procedures, since both indoor and outdoor rooms can be included in the medical therapy of the patients.

#### 4.2 Saving Energy, Water and Operational Costs

The reduced energy consumption, and the consequent reduced energy costs, is one of the defining features of any green building. Energy efficiency has a significant impact on the overall running costs of a property as well; as energy prices rise; operational energy efficiency is likely to become one of the more important drivers for occupier demand. Estimates for the reduction in a green building's energy use compared to a conventional code-compliant building range from 25% - 30% (based on LEED-certified buildings in the United States) to up to 35% - 50%.<sup>1</sup>

Therefore it is not surprising that the main advantage of participating in the first application phase stressed by all hospital operators was the possibility to reduce the costs for energy, water and building operation.

The “Glantal-Klinik Meisenheim” for example was able to reduce its costs concerning heat by about 50 %. Besides this the costs for electricity have also been reduced significantly.

<sup>1</sup> THE BUSINESS CASE FOR GREEN BUILDING. Published by the World Green Building Council (WGBC), 2013.



The “Helmut-G. Walther-Klinikum Lichtenfels” benefits as well from reduced energy costs. The heating energy conservation compared to the old building is estimated with 56 %. Because of efficient lighting control systems and the application of LED lights the electricity consumption can even be reduced by 60 %.

Green Buildings have been shown to save money through reduced energy and water use and lower long-term operation and maintenance costs. Energy savings typically exceed any cost premiums associated with their design and construction within a reasonable payback period.

High performance green buildings need to be backed up by robust commissioning, effective management, leadership and communication in order to achieve their predicted performance. Therefore, special attention is also paid to the implementation of extended commissioning of engineering systems, as well as a subsequent monitoring in the system DGNB „New Healthcare Buildings, 2013“.

### **4.3 Reduction of Maintenance and Replacements Costs**

Besides resource efficiency, another typical feature of green buildings is the focus on the durability and longevity of systems and finishes.

A material is usually considered regarding its entire life cycle, as well as its attributes at the time of installation, using a cradle-to-cradle approach that takes into consideration the embodied energy, toxicity and emissions, replacement cycles and disposal to ensure that a material is ‘green’ in all aspects.

A properly specified palette of sustainable materials and building systems would provide financial benefit in the long term through less frequent replacement cycles and decreased cleaning and maintenance requirements, as well as benefits linked to healthier indoor environments due to lower toxicity and emissions.

Taking it a step further, materials that are truly cradle-to-cradle have an additional cycle of recycling and recovery at the end of their life, creating the potential for an additional income stream, although this process is presently in its infancy.

All these aspects are taken into account in the system DGNB. The durability and environmental friendliness of the building materials and construction products is taken into account in the environmental quality section within the context of a Life Cycle Assessment (LCA).

The evaluation of disassembly, deconstruction and recyclability is evaluated in the technical quality.

#### **4.4 Owner Benefits**

The benefits for the owner are obvious:

- With the construction and operation of sustainable hospitals, the costs can be lowered while simultaneously the comfort of the patient and workers are improved.
- The projects quickly gain attention from the public which increases their corporate image and prestige value. In addition, the compliance with the legal requirements and the corporate social responsibility (CSR), as well as the compliance with the principle guidelines are part of the advantages of a certification.

Such benefits also have a positive effect on the bed occupancy rates, the quality of the medical treatments as well as the attachment of the employees to their employer.

### **5 Work Flow of a Possible Certification of the new Hospital DNV-Gødstrup**

#### **5.1 Certification Steps**

The “classic” certification workflow should be divided in two steps.

The first step is the pre-assessment stage. Based on the preliminary or schematic design the project is analyzed and a preliminary rating is held. After defining the certification goal, necessary measures are determined and costs are estimated. For the last step in the pre-assessment stage, the implementation of the decisions in the planning process has to be prepared.

The pre-assessment stage is followed by the certification stage. First the project has to be registered at the DGNB or DK-GBC. During the design phase verifications regarding the criteria are developed. Due to these steps optimizations of the concept may be necessary.

The tendering process and the awarding of the contract are accompanied. Meanwhile the verification management goes on. Throughout the whole phase the current score will be monitored in order to reach the defined goal.

To insure the energy efficiency of the building a commissioning will be carried out before the building is obtained by the user. The commissioning phase is followed by a monitoring phase for at least 14 month.

After an overall audit by the “DGNB-Auditor” (DGNB accredited professional) all verification documents and documentation of the DGNB must be submitted for conformance testing and review. If the review was successful, the DGNB certificate will be awarded.

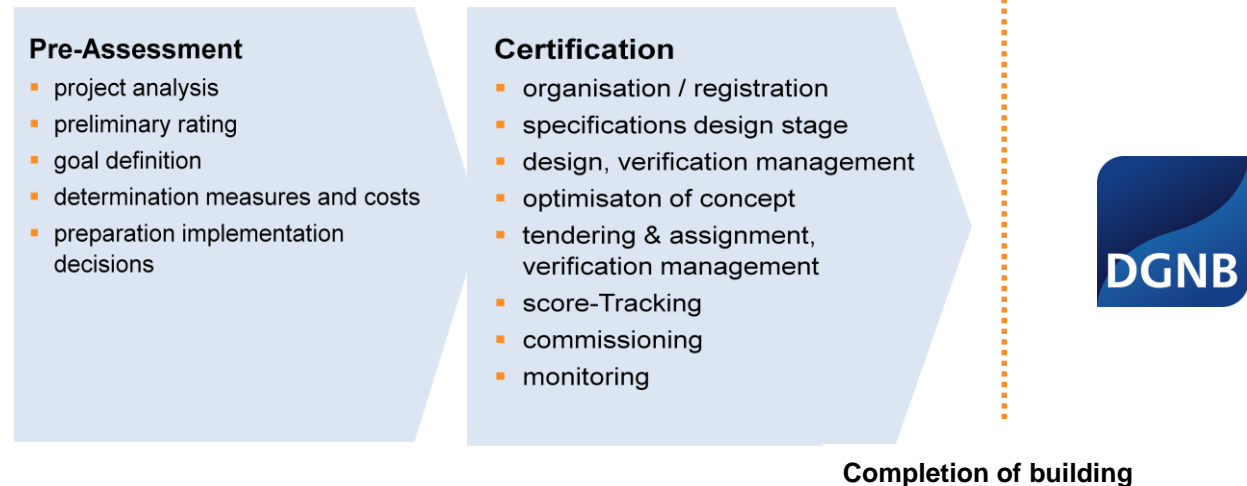
**Step 1**

Green Building Consulting

**Step 2**

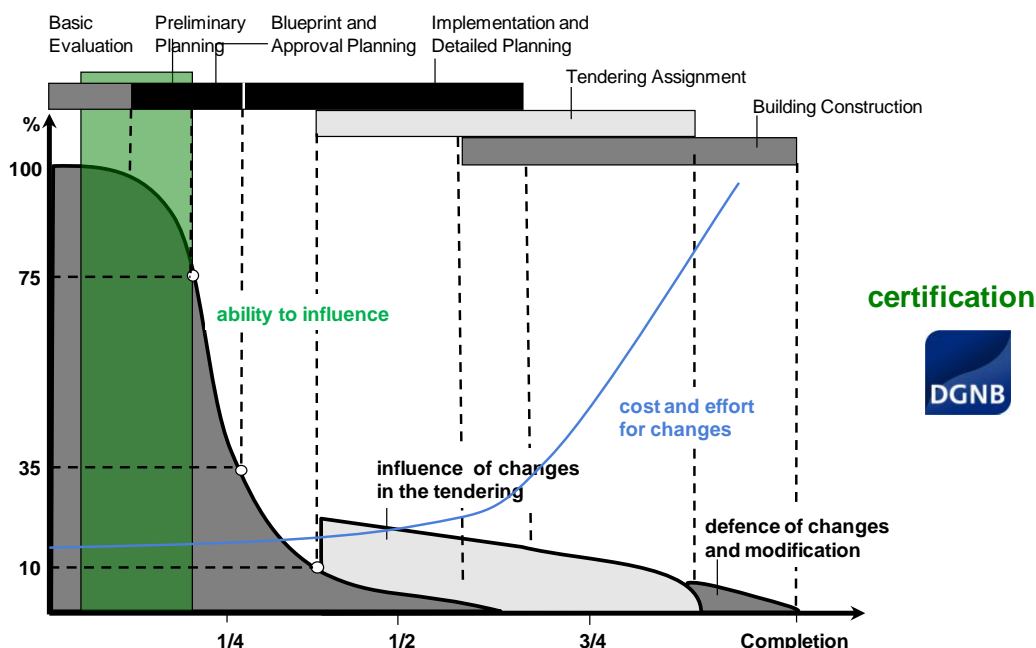
Green Building Design & Management

**Award**



**5.2 Certification Time Schedule**

The sooner DGNB criteria are implemented in the planning phase, the better. Best time to implement the DGNB requirements into the planning process should be the preliminary design phase. The early definition of all essential sustainability criteria sets clear targets for the project team, which increases transparency, strengthens risk management and provides a safe basis for the planned performance targets. The same holds true for financing.



### 5.3 Certification Costs

The cost of the certification depends on the one hand very much on the implementation time of the requirements and on the other hand on the base owner requirements.

Research<sup>1</sup> shows that a building green does not necessarily need to cost more, particularly when cost strategies, program management and sustainable strategies are integrated into the development and the planning process right from the start.

Furthermore, there has been an overall trend towards the reduction of design and construction costs associated with green buildings. Since building an energy codes have become stricter in the last few years, supply chains for “green” materials and technologies have matured and the industry has become more skilled at delivering sustainable buildings.

The following costs are associated with a DGNB certification:

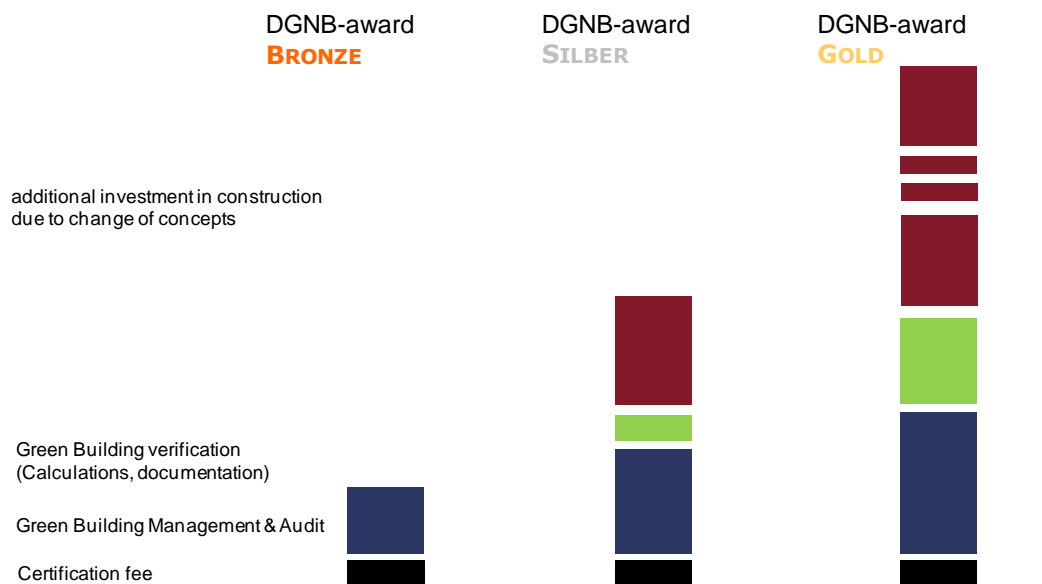


Figure 2: Type of costs associated with DGNB-certification

**Certification fees:** With the project registration, a registration fee has to be paid at the DGNB, which is determined as a function of gross floor area, pre-certification or certification and DGNB membership discount plus a base amount. In relation to DNV, Gødstrup (area >60.000 m<sup>2</sup>), the pre-certification fee is 52.000 DKK and the actual certification fee is 146.000 DKK (applicable price when the client is a member of DK-GBC).

**GBM and Audit:** The costs of the Green Building Consulting and Management and the audit will be agreed separately between the owner and the DGNB consultant company and may vary according to project size, project duration and providers. The counselling could include team

<sup>1</sup> THE BUSINESS CASE FOR GREEN BUILDING. Published by the World Green Building Council (WGBC), 2013.

meetings, workshops and documentation reviews and therefore the price is also related to factors such as the level of experience in the design team, and not least the level of ambition of the project.

Experience from past projects in Germany and Denmark indicates that the management/audit consulting fee is in the range of 400.000 - 800.000 DKK.

**Proofs, Calculations:** Many computations, calculations and proofs have to be provided in the execution planning phase. Furthermore, quality proofs from the construction process and the whole material and construction documentation have to be prepared in such way that they can be submitted to the DGNB. Many of these documentations are already required from the building regulations, but (depending on the level of ambition) a range of additional calculations might have to be executed.

Therefore the additional cost associated with the DGNB certification varies depending on the services ordered already for the professional planner and contractor contracts.

**Additional investments:** Higher upfront capital costs for green buildings have been found to be proportional to the increased level of certification. However, increasingly projects are able to achieve higher level of certification at lower costs compared to less ambitious projects.

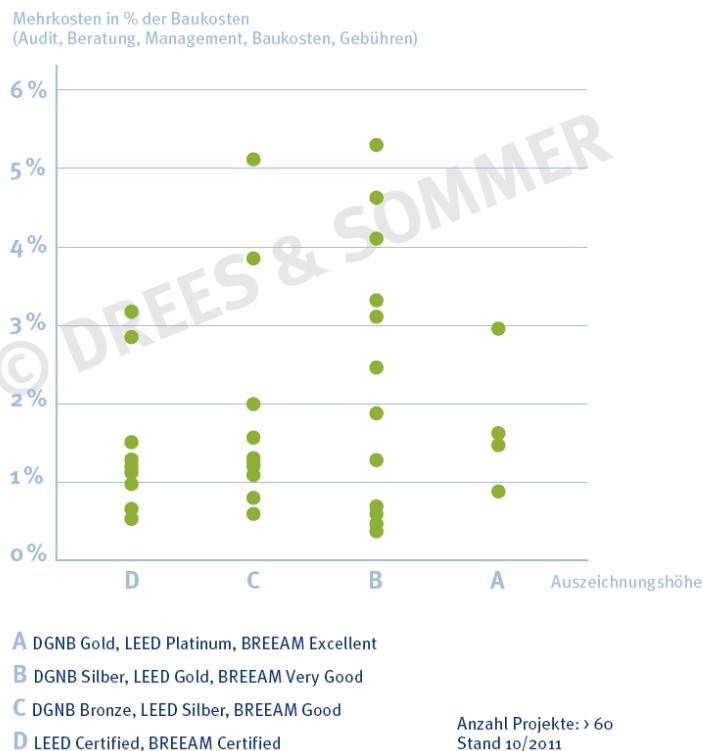


Figure 3: upfront capital costs (investment) as a function of certification level

## **6 Disclaimer**

Drees & Sommer has by the Project Secretariat, DNV-Gødstrup been given the task of preparing a status report regarding DGNB certification of hospitals. The scientific assessment is limited to the information present at Drees & Sommer regarding the German market at the date of the report and the contractually agreed-upon scope description. There can thus be pilot work regarding certification of Hospitals be carried out in other countries. The knowledge from this work is not included in this report.

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