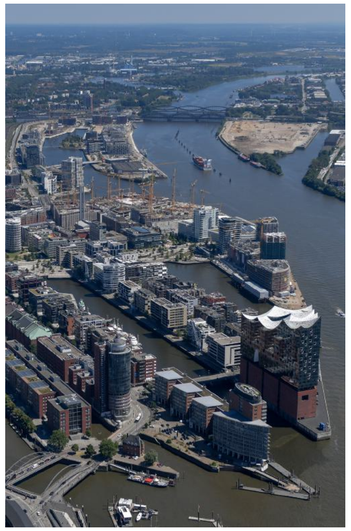
HafenCity

Building Sustainably

Certification of buildings in the four areas HafenCity, Billebogen, Grasbrook, and Science City Hamburg Bahrenfeld

Hamburg

Contents



Dear Readers,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Dr. Andreas Kleinau, Chairman of the Managing Board of HafenCity Hamburg GmbH

It is now an established fact that the construction and real estate sector is not only one of the principal generators of CO_2 emissions, but also a consumer of large quantities of raw materials, energy and space. Therefore, there is great pressure on this sector to act on achieving a climate-neutral society, with there being tremendous potential to be exploited.

HafenCity Hamburg GmbH recognized this at a very early stage and took the right steps at the beginning of the new millennium. As a pioneer of a national and international sustainability movement in construction, the company developed Germany's first certification system for sustainable building: the HafenCity Ecolabel. Since 2007, it has enabled developers to organize and evaluate their construction activities as a whole according to sustainability criteria. In doing so, it set new standards for future-oriented construction at a very early stage and played a major role in establishing the sustainability concept throughout the real estate industry. The resulting change still has an impact today, both on a national and international level.

In recent years, this has led to the construction of numerous buildings in Germany and especially in Hamburg's HafenCity, showing that ecologically sustainable solutions can be desirable, economically viable, and successful with regard to design; that they generate excellent amenity value, and provide urban spaces that offer a high quality of life. This independent sustainability certificate has proved its worth for many years and was a necessary and effective instrument for promoting sustainable building in HafenCity.

What we once helped to initiate - including as a founding member of the German Sustainable Building Council - has been taken up and institutionalized. The pursuit and achievement of acknowledged sustainability goals are now firmly anchored in German, European, and international political objectives and have also become established in many sectors within the sphere of international finance. Last but not least, the EU Taxonomy Regulation as part of the European Green Deal determines the rules and legislative conditions for a sustainable economy. These requirements are reflected in the national action level and also determine the fundamental framework conditions and funding policies there.

In the course of these changes, we restructured our Ecolabel in 2022 - but without leaving the previous transformation path. The core element here is our cooperation with the German Sustainable Building Council (DGNB), with whom we have engaged in trusting and professional exchange for many years and with whom we also share the same vision: to insist on and promote sustainability in the construction and real estate sector and to anchor it in society. The jointly prepared sustainability certificate, which we published in June 2023, now also contributes to the realization of this vision.

The new DGNB special award Ecolabel was designed by HafenCity Hamburg GmbH and the DGNB for the four downtown areas of HafenCity, Billebogen, Grasbrook, and Science City Hamburg Bahrenfeld. It substantiates the sustainability requirements for projects on construction fields developed by HafenCity Hamburg GmbH or its subsidiaries. The new special award introduces central aspects from the previous HafenCity Ecolabel and links them to the known DGNB system.

Thanks to its compatibility with national and international funding policies and regulations and the utilization of methodological and documentation standards, the new special award will enable valuable synergies for future developers. By means of the wider distribution of the DGNB system, the special award also ensures the acceptance of all relevant stakeholders in the finance and real estate sector as well as of users who also keep track of their ecological footprint.

With the DGNB special award Ecolabel, we are continuing a success story. This is because certified buildings not only create numerous measurable and visible benefits, but also set new standards that are imperative for sustainable and viable urban development. Many thanks go to all those who supported the development process of the DGNB special award Ecolabel with their expertise and valuable assessments. We would particularly like to thank all the developers who have already been involved in HafenCity for the productive cooperation that has made this development possible. Together, we would like to continue to fulfill and further develop the exemplary sustainability requirements in the future.

Best regards

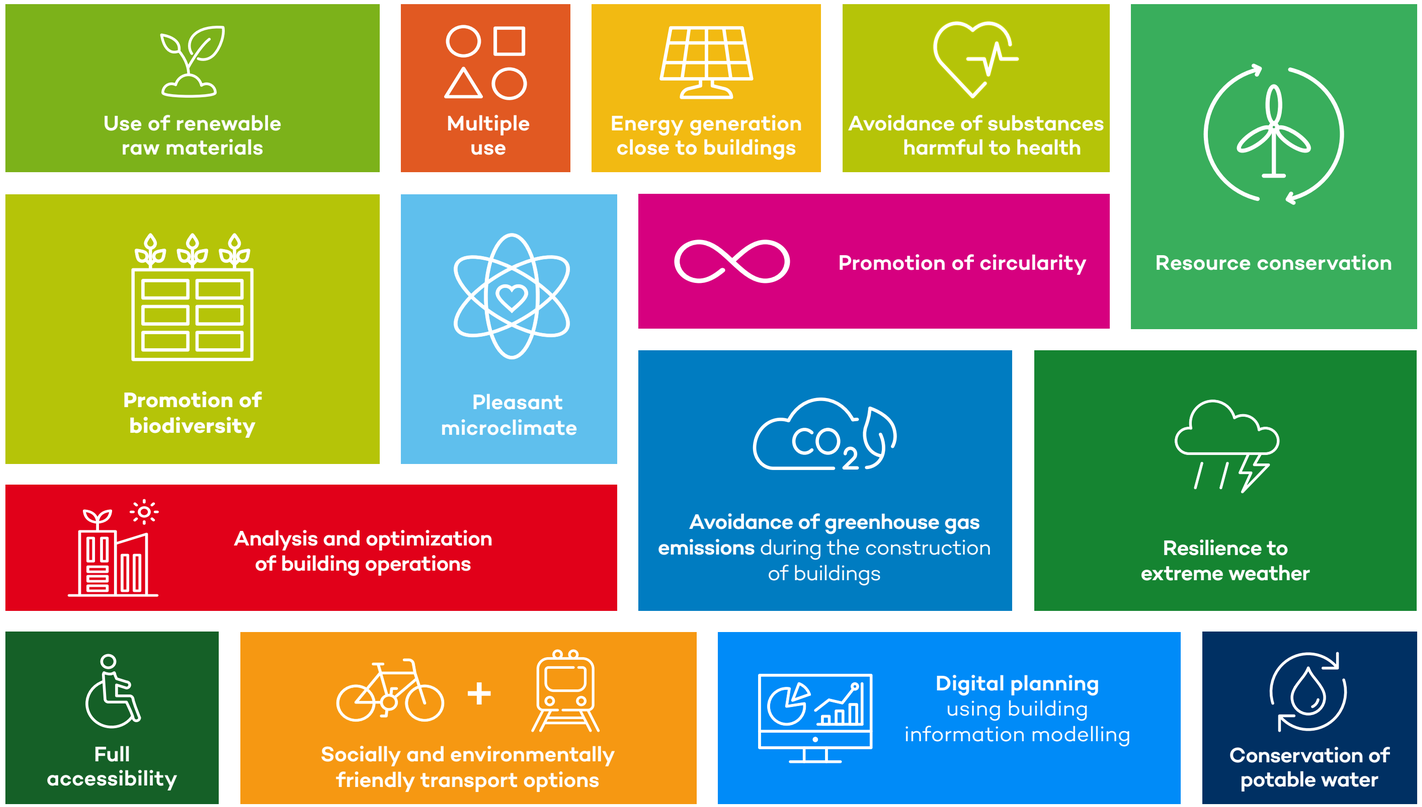
Andreas Kleinau
Chairman of the Managing Board
of HafenCity Hamburg GmbH

1 Accepting Challenges

Urban Development in Times of Climate Change

In March 2023, the Intergovernmental Panel on Climate Change (IPCC) [1] presented the synthesis of its sixth assessment report.[2] The authors' argument is emphatic and unmistakable: In order to achieve the 2015 Paris climate targets, a turnaround in the mitigation of global greenhouse gas emissions is urgently needed. According to the report, the limitation of global warming to 1.5°C is only possible if CO_2 emissions are reduced quickly and significantly in all sectors globally within this decade and fall to net zero by the 2050s at the latest. This means that the world community is facing a huge transformation challenge - and the building sector can and must make a significant contribution to overcome it.

According to Germany's environmental protection agency, between 30 and 35 per cent of greenhouse gas emissions in Germany are currently attributable to the construction, maintenance, and operation of buildings.[3] A significant proportion of CO_2 emissions are already generated in the processes upstream of construction and thus long before the operational phase of a building. In addition, high consumption of resources such as areas, water, energy, and raw materials come with the construction and operation of buildings. After the utilization phase, substantial quantities of demolition waste make a considerable contribution to waste generated in Germany. However, demanding a general restriction of all construction activities to lower sector-specific CO_2 emissions as a consequence is not sufficient. This becomes obvious, among other things, by taking a look at the housing markets, which have been subject to pressure in some regions for years. Particularly in metropolitan areas, the vacancy rate is constantly low,[4] residential space is limited and demand is high. In order to meet the needs, including for affordable housing, there is no other way than to develop new districts and buildings in areas with very tight housing markets.[5]



Graphic: Sustainable buildings have many facets. Their construction therefore involves a range of (ecological) aspects.

[1] Intergovernmental Panel on Climate Change, IPCC | [2] *https://www.ipcc.ch/report/sixth-assessment-report-cycle/* | [3] Umweltbundesamt: Umwelt und Klima schützen – Wohnraum schaffen – Lebensqualität verbesserm *(https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/2023_uba_pos_wohnraum_bf.pdf)*
[4] Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen: *https://www.deutschlandatlas.bund.de/DE/Karten/Wie-wir-wohnen/046-Wohnungsleerstand.html* | [5] For calculations of demand for new-build housing in Hamburg, see: *https://www.bbsr.bund.de/BBSR/DE/forschung/fachbeitraege/wohnen-immobilien/wohnungsmarktprognose/Prognose2030/DatenKartenGrafiken.html*

Sustainable urban development anticipates the impacts of climate change, aims for climate neutrality, and conserves resources. At the same time, it creates high-quality living space. Sustainable buildings are characteristic elements of sustainable urban districts.

This dilemma between environmental and social requirements can be solved by means of holistic, sustainable urban development. This takes into consideration social, economic, and ecological factors, and the ecological aspect in particular has in recent years - in view of the challenges of climate change - not only gained in urgency, but also in social awareness. It is therefore useful to develop strategies and mechanisms that enable urban development to be environmentally friendly as well as protect the climate and conserve resources.

Although cities and metropolitan areas are sometimes considered problematic in their own right in terms of sustainability, they are an important part of the solution. In this way, valuable natural areas can be preserved by building primarily where land has already been developed - in the cities. However, this downtown development is only one element on the path toward reaching the sustainability targets. In addition, measures are required to make construction itself more climate-friendly and start at the property and building level. Taking the entire life cycle of a building into consideration, there are many potential opportunities that can be taken to positively influence sustainability. These include aspects such as the use of renewable and recycled materials, options for generating energy in the vicinity of the building, or nature-based solutions to improve the microclimate and protect biodiversity.

However, sustainable urban development implies that such approaches are not only implemented in individual showcase buildings, but that they are also applied throughout an entire district or quarter. Accordingly, effective instruments are required to promote and encourage sustainable building as a whole, not only now but also in the future. This brochure will focus on one of these instruments: building certification, which has established itself over time as an effective and reliable tool for measuring and promoting sustainable building solutions.

Certified buildings are considered to be role models and pioneers of the transformation to sustainable building. They promote the development of new standards by implementing alternative, more sustainable options, thus priming the market. Building certification has already extensively proved its benefits for protecting the climate and resources - particularly in HafenCity, where Germany's first certification system for sustainable building was developed in 2007 with the HafenCity Ecolabel.

Building Sustainability Certification: The Benefits

- → an interdisciplinary approach and holistic assessment of different aspects of sustainability
- → quality assurance through clear evaluation criteria, process support, and documentation
- → proof of quality through independent testing

Sustainable buildings...

- → ... protect the climate, environment, and resources
- → ... create high quality for users
- → ... optimize operating costs and material usage, as well as increase value retention

Driving Innovation Forward 2

Building Certification as an Instrument of Sustainable Urban Development

Aerial view of HafenCity: view from the western tip with the Elbphilharmonie concert hall in the east

HafenCity is Europe's largest downtown urban development project. With an area of 127 hectares, the district, which is situated directly on the Elbe, extends the area of Hamburg's city center by around 40 percent. Right from the beginning, an area development of this magnitude is associated with great responsibility, combined with a national and international role model effect. HafenCity Hamburg GmbH therefore developed and established a wide range of concepts, procedures, and implementation tools at an early stage, which contribute to sustainable urban development with regard to ecological, economic, and social aspects.

The conversion of former harbor and port areas into HafenCity, consisting of mixed-use districts with dense development and good accessibility by bus and train, makes a significant contribution to the sustainable development of Hamburg. The observation of technical and functional as well as social and ecological requirements is not only essential when shaping the development structure, but also in the utilization mix and design of infrastructure and open spaces. Sustainable urban development instruments include functional and land use planning, civil participation processes, and sector-specific district concepts such as an individual mobility concept for eastern HafenCity.

In addition to measures at district and quarter level, other aspects must also be taken into consideration. In particular, specific efforts should be made to erect sustainable buildings, which in HafenCity are mostly built by private developers. As most of the property in the HafenCity area was municipally owned at the beginning of the district development and was not intended to be developed by HafenCity Hamburg GmbH, the property could be allocated to developers with an "exclusive option period", meaning in the form of exclusive options with contractually agreed terms between the developer and the urban development company. In this way, the contribution to sustainable urban development at property level in its economic and social dimensions was and continues to be ensured by means of economically sustainable building concepts, high architectural quality, the diversity of uses, and a wide range of differently priced housing options.

Another of these instruments, which addresses above all the ecological aspects of sustainable building development, is building certification. Certification enables buildings to be assessed on the basis of predefined sustainability criteria. The criteria are checked by an independent body, allowing the sustainability of a building to become comparable. The instrument of certification can be used particularly effectively in combination with the established exclusive option process. As part of allocation and tender procedures for building areas and exclusive option periods, certification will become a compulsory prerequisite for the allocation of property by HafenCity Hamburg GmbH and its subsidiaries, enabling the district-wide implementation of high sustainability quality. In addition, certification generates incentives for players in the real estate industry to strive for greater sustainability. In this respect, building certification is not merely to be seen as a requirement, but also serves as a marker of quality for all players - owners, tenants, and users alike.

HafenCity Hamburg GmbH has made a significant contribution to the success story of building certification as an instrument of sustainable urban development

In 2007, HafenCity Hamburg GmbH created the HafenCity Ecolabel, Germany's first system for certifying sustainable buildings, thus identifying and implementing the potential of such instruments for environmentally responsible construction at a very early stage. Since 2007, it offers committed developers the opportunity of having their own sustainability certificate. HafenCity Hamburg GmbH therefore assumed a pioneering role just one year before the establishment of a comparable award with nationwide validity.

Initially, certification in HafenCity with the Silver or Gold Ecolabel was optional. However, in view of the urgency of sustainable, climate-friendly building solutions, which was already evident at the time, and the ambition of district-wide integration, this was modified only three years later. In 2010, compliance with the highest certification standard at that time (Gold) became compulsory as part of the exclusive option periods. Since then, the certification of buildings has been part of HafenCity's general quality standard, which remains a unique selling point for a district of this size.

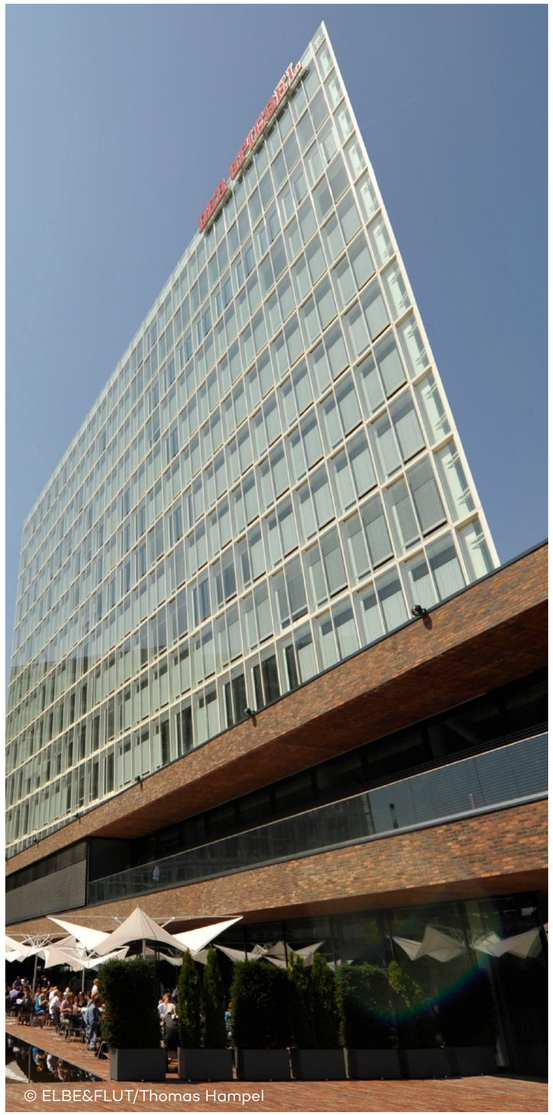
The HafenCity Ecolabel comprises criteria such as the sustainable utilization of energy and public assets. The Ecolabel is based on the use of environmentally friendly building materials and also attaches importance to sustainable and therefore cost-effective building operation as well as features that are beneficial to health and well-being during utilization. Over the years, the requirements and stipulations of the Ecolabel have been regularly assessed and further developed. Among other things, new technical possibilities, legislative changes, and requirements resulting from progressing climate change have been taken into consideration, as well as the results of a constant dialog with various stakeholders, primarily the developers. In 2017, these adjustments resulted in a third, updated version of the Ecolabel, whose highest certification standard, Platinum, became compulsory at the same time and is still in use today.

This certification in accordance with the highest quality standards promotes and strengthens the public awareness of each individual project as well as the overall HafenCity project. To date, 71 projects with more than 1.0 million m^2 of floor space have been certified or pre-certified with the HafenCity Ecolabel, including one project at Silver level, 46 at Gold level, and 24 at Platinum level (as of 2023). Eleven more projects to be awarded the HafenCity Ecolabel are currently in their implementation phase.

With the development of the Ecolabel and its consistent, district-wide application, HafenCity Hamburg GmbH has made a significant contribution to anchoring the sustainability concept in the real estate sector and to promoting the associated standards in the industry. In addition, during the years since the last update, it has continuously contributed to the preparation of exemplary climate-friendly solutions. Various construction projects have been and are currently being implemented that even exceed the requirements of the HafenCity Ecolabel Platinum standard. By enabling such projects, HafenCity Hamburg GmbH motivates developers to come up with new, sustainable solutions and continues its own innovation efforts.

In line with the transformation path that has been successful so far, constant reflection against the background of changing framework conditions is also an important part of the self-portrait. In 2022, this flexibility resulted in a reorientation, which is explained in detail in section 3. The core is the conception of the DGNB special award Ecolabel, which replaced the HafenCity Ecolabel for new projects and was developed in collaboration with the German Sustainable Building Council (DGNB).

The Spiegel building on Ericusspitze was the first to be certified with the HafenCity Gold Ecolabel.



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The HafenCity Ecolabel has been setting the standard for sustainable buildings in HafenCity since 2007. In the following years, the certificate was continually further developed and adjusted in line with new conditions and opportunities.

2007

First certification system for sustainable building in Germany. Silver and Gold awards are possible.

2010

Gold standard becomes a prerequisite for the exclusive option period of properties.

2017

Platinum standard becomes a prerequisite for the exclusive option period of properties.

2019

HafenCity as a test bed Requirements beyond the Platinum standard are being tested.

2020

Zero Emissions Building The future company headquarters of HafenCity Hamburg GmbH have had a balanced carbon footprint since being constructed.

2022

Reformulation in cooperation with the German Sustainable Building Council (DGNB).

Graphic: the development of the HafenCity Ecolabel and the transformation of sustainable building over the last 15 years

HafenCity Test Bed for Sustainable Building

Over the years, HafenCity has become a test bed for sustainable building. From timber high-rise to zero-emission buildings, numerous trendsetting projects are putting new methods and materials into practice, providing important inspiration for the entire real estate sector. Following from the sustainability requirements of the Ecolabel, which apply to all projects, many of the flagship projects aim to take a more intensive view of the life cycle and focus on reducing gray energy. Released during the construction of a building, grey energy comprises the energy used for material extraction, the production of components, the transport of machines, components, and materials; and their installation.

The use of renewable raw materials such as wood and clay, CO_2-reduced steel, recycled construction materials, and modular or concrete-saving construction methods help reduce gray energy. Accompanying documentation of the materials utilized and their separability during deconstruction ensures that they can be recycled and used again at a later date. In addition, elements such as photovoltaic systems and new options for digital consumption control have a positive effect on economical building operation. Greening of roofs and façades is also increasingly being done and makes a major contribution to the microclimate and biodiversity in the district.

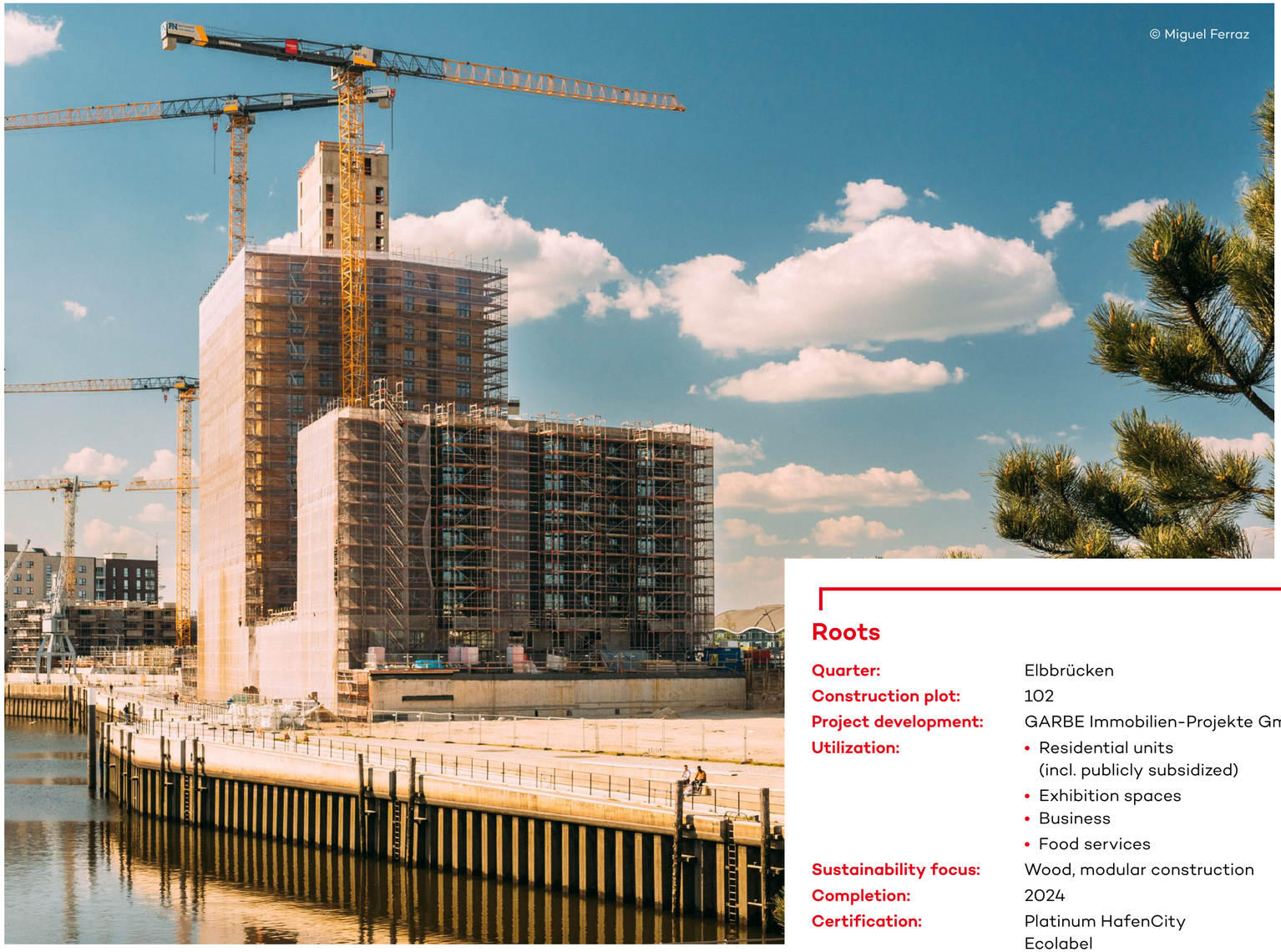
The flagship projects in HafenCity provide tangible examples of best practice and therefore play a trendsetting role in terms of a comprehensive understanding of sustainability in urban development.

Greened roofs and large open spaces such as Baakenpark promote biodiversity and a favorable microclimate in the district.

Roots

Flying high with wood

Roots will be the tallest timber tower block in Germany at the time of its construction



The pursuit of sustainability is on the rise and also visually defining the urban landscape of HafenCity. Wood - one of the oldest building materials, which has been rediscovered not least because of its good environmental footprint - is used particularly impressively at the entrance to the Elbbrücken district. The 19-storey tower of the Roots building complex will be the tallest high-rise timber structure in Germany when it is completed. Reinforced concrete is only used as the main load-bearing element for the foundation, the central stairwells, and the first and second floors of the 65-meter-high tower. From the third floor upwards, the façade, ceilings, and load-bearing walls are made of wood. The timber construction of the building, designed by the architects Stormer Murphy and Partners, makes an important contribution to climate protection. Wood is a carbon-capturing and renewable building material. The 5,500 cubic meters of wood used originate from sustainable forestry and regenerate in Germany's forests within 23 minutes. Wood also has other positive properties: It creates a pleasant indoor climate, has better insulating properties than reinforced concrete, and offers a high level of stability and low weight. The resource-conserving prefabricated façade and wall modules can be assembled on site, which saves time.

"Reducing CO_2 in the construction process is a huge challenge and will completely change the way we build and plan. We will build all components that we can produce economically and usefully from wood."

Fabian von Köppen,
Chief Executive Officer of GARBE Immobilien-Projekte

Roots

Quarter:	Elbbrücken
Construction plot:	102
Project development:	GARBE Immobilien-Projekte GmbH
Utilization:	• Residential units (incl. publicly subsidized) • Exhibition spaces • Business • Food services
Sustainability focus:	Wood, modular construction
Completion:	2024
Certification:	Platinum HafenCity Ecolabel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EDGE ElbSide

Energy efficiency through innovative technology

In 2023, the energy company Vattenfall moved into its new Hamburg headquarters in HafenCity - in a building that also sets standards in terms of sustainability: The EDGE ElbSide on Amerigo-Vespucci-Platz is the tallest building in Germany to be built using the slim-floor construction method. Due to a combination of hollow prestressed concrete slabs and steel composite girders of the same thickness, the building produces almost 50 percent less CO_2 than traditional in-situ concrete construction. In operation, the building constructed by project developer EDGE Technologies utilizes renewable energy sources and photovoltaic systems. The intelligent building technology provides a variety of efficient digital solutions to minimize the ecological footprint during utilization and maximize the well-being of users. In addition, data is collected about consumption sources and space utilization, which helps to reduce emissions in building operations and other environmental impacts. EDGE Technologies, HafenCity University Hamburg (HCU), and HafenCity Hamburg GmbH have also established a research partnership to use data from intelligent technologies and, in the spirit of a smart city approach, leverage that data for sustainable urban and neighborhood development.

"Hamburg HafenCity is not only one of the largest, but also one of the most innovative and modern urban development projects in Europe. Sustainability issues such as preserving resources, reducing greenhouse gas emissions, and promoting circular construction were particularly important here right from the beginning, setting new standards for the real estate sector - even beyond Hamburg. HafenCity is therefore an ideal location for a technologically trendsetting and holistically sustainable approach."

Jens Fieber, Member of the Management Board of EDGE Germany

EDGE

Quarter:	Elbbrücken
Construction plot:	117
Project development:	EDGE Technologies
Utilization:	• Business • Public use
Sustainability focus:	Slim-floor construction, smart and user-friendly building concept and operation
Completion:	2023
Certification:	Platinum HafenCity Ecolabel is the aim

The EDGE ElbSide impresses with its slim-floor design and innovative building technology

Moringa

Green high-rise residential building based on the Cradle to Cradle® principle

Also in the Elbbrücken quarter, the Moringa project on construction plot 105 is also meeting its ecological responsibility. Germany's first high-rise residential building inspired by the Cradle to Cradle® principle is being built here. This envisages that the building materials, products, or components used in the building with approximately 190 rental apartments can be reused to a great extent after deconstruction. The idea behind it: The building sector is developing into a circular economy in the long term, which considers buildings as a kind of "material warehouse." Instead of having to pay for waste and disposal costs at the end of the life cycle, it creates economic added value and protects resources. Moringa also uses timber in the façade construction and, in addition to a green façade, also creates a green inner courtyard and a green roof. The green façades act as the "green lungs" of the quarter by assuming cooling and air-purifying functions and generating oxygen. They shape the living space of the residents and also define the design of the building. Overall, more green space is created horizontally and vertically than the section of land that is built on.

In addition to these three projects, there are other projects that also contribute to shaping HafenCity as a pioneering district with their sustainability approaches. These include a building that HafenCity Hamburg GmbH is erecting itself.

"HafenCity offers a stage on which incredibly attractive, innovative, and sustainable con-cepts can be realized. This is based on visionary urban planning that is unique in Germany."

Vanja Schneider,
Chief Executive Officer of
Moringa by Landmarken AG

The idea of a circular economy is first and foremost in the first Moringa high-rise residential building inspired by the Cradle to Cradle® principle

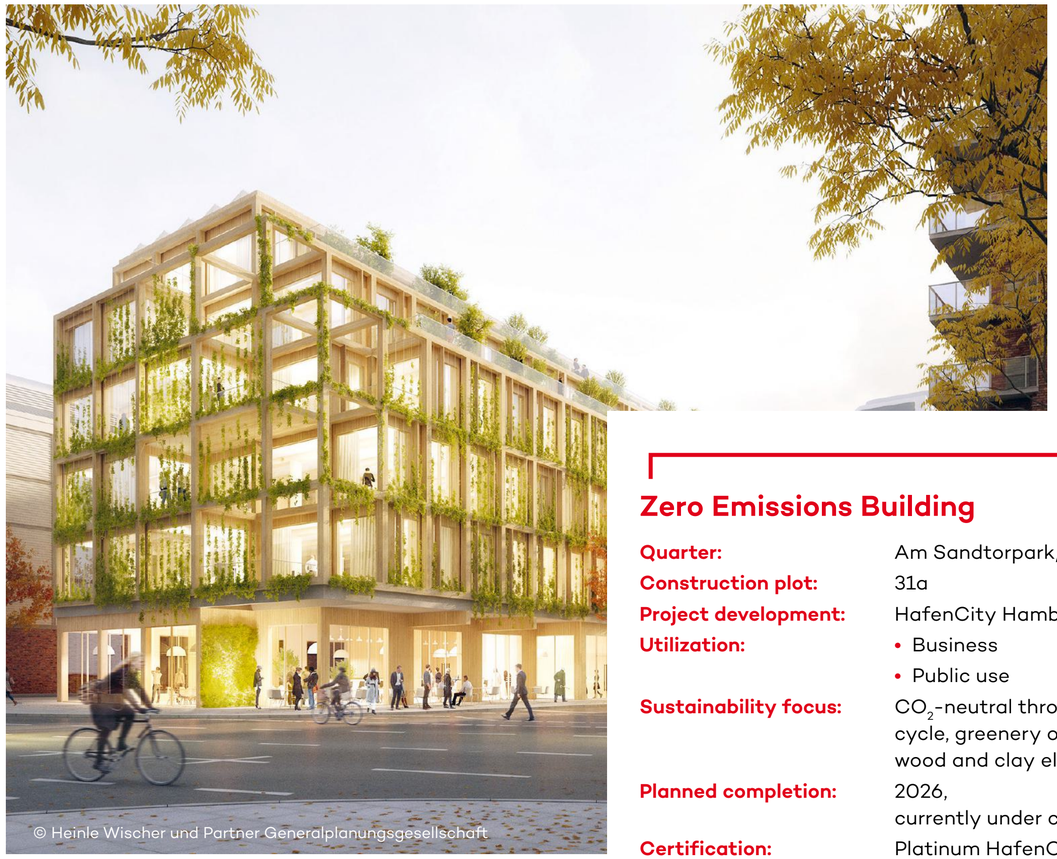
Moringa

Quarter:	Elbbrücken
Construction plot:	105
Project development:	Moringa by Landmarken AG
Utilization:	• Residential units (incl. publicly subsidized) • Daycare facilities • Public use • Food services
Sustainability focus:	Recyclability and deconstruction, green façades
Planned completion:	2025, currently under construction
Certification:	Platinum HafenCity Ecolabel is the aim

The Zero Emissions Building

CO_2-neutral over the entire life cycle

The Zero Emissions Building will be CO_2-neutral throughout its life cycle and set new standards in HafenCity



As the developer, HafenCity Hamburg GmbH is not only closing the last urban development gap in western HafenCity. The future company headquarters will demonstrate how a zero-emission building can be CO_2-neutral not only during operation, but also throughout its entire life cycle - from the materials used and building operation through to deconstruction and disposal. Right from the very beginning, the origin of materials, building operation, and subsequent deconstruction and reuse were included in the planning process in accordance with the principles of circular construction. The whole structure above the ground floor is designed as a modular timber building. Extensive greenery on the façade helps to improve the microclimate. Roof terraces for common use are planned on about 30 percent of the roof area, while 60 percent of the roof area is covered in greenery. In addition, the south façade and roof area will be covered with photovoltaic modules to generate solar energy. Last not least, the building will not have any car parking spaces; instead, it will encourage environmentally friendly mobility with up to 150 bicycle parking spaces. With this ambitious sustainability concept, HafenCity Hamburg GmbH's Zero Emissions Building is setting an example throughout Europe and will also set standards for future property development projects in HafenCity and in the other urban development projects in Grasbrook, Billebogen, and Science City Hamburg Bahrenfeld. After all, low-CO_2 or even CO_2-neutral buildings are an important prerequisite for fulfilling the European climate protection targets. If breakthroughs are to be achieved, it is not least the building sector that needs to act wisely and press ahead. This applies to HafenCity Hamburg GmbH as an urban development company as well as to the developers in the trendsetting quarters that inspire and are inspired by flagship projects in this innovative location.

Zero Emissions Building

Quarter:	Am Sandtorpark/Grasbrook
Construction plot:	31a
Project development:	HafenCity Hamburg GmbH
Utilization:	• Business • Public use
Sustainability focus:	CO_2-neutral throughout life cycle, greenery on roof and façades, wood and clay elements
Planned completion:	2026, currently under construction
Certification:	Platinum HafenCity Ecolabel is the aim

"With our own future building, we want to set our own standards and, if possible, even surpass them. With the timber construction method, the façade greening and the strict definition of a 'zero-emission building' - CO_2-neutral throughout the life cycle - we are gaining practical experience that we will share with our development partners and use to further develop our building-related sustainability requirements."

Jan Jungclaus,
Project Manager Sustainable Building,
HafenCity Hamburg GmbH

Shaping the Future 3

Dynamic Legislative Conditions and Ambitious Goals

In order to mitigate climate change, national and international policymakers have defined objectives in the last few years that focus on sustainable development to protect the planet. These are based on the goals of the Paris Agreement (2015) and the 17 Sustainable Development Goals (SDGs), which were jointly adopted by the United Nations in 2015 and address ecological, economic, and social goals. With the European Green Deal, the European Commission also presented a corresponding transformation program in 2019. All 27 EU member states jointly agreed to make Europe greener by becoming the first climate-neutral continent by 2050. By 2030, greenhouse gas emissions are to be reduced by at least 55 percent compared to the 1990 levels.

The EU has developed various strategies to achieve this and other goals - including those that directly impact urban development, such as the Zero Pollution Action Plan or the EU Soil Strategy. In addition, in order to fulfill the objectives listed in the Green Deal, the decision was made to invest large amounts in order to promote ecologically sustainable economic activity. The “EU taxonomy” is also an essential instrument in this context. It categorizes economic activities of major sectors and defines threshold values in order to classify them as environmentally sustainable. The taxonomy serves as a source of information and a management tool to steer public and private capital flows toward sustainable uses. This is intended to influence financing and investment decisions, including in the real estate sector.

The EU measures are supported by frameworks and regulations at national level. For example, with the amendment to the Climate Protection Act, the Federal Government stepped up its climate protection targets in 2021 and determined the goal of greenhouse gas neutrality by 2045. By 2030, emissions are to be reduced by 65 percent compared to 1990. These ambitions also have an impact on the building sector and are reflected accordingly in legal requirements such as the Gebäudeenergiegesetz (GEG [Building Energy Act]), which specifies the requirements for the energy quality of buildings, the preparation and use of energy certificates, and the use of renewable energies, among other things. By means of national funding programs such as the Bundesförderung für effiziente Gebäude (BEG [Federal Funding for Efficient Buildings]), financial incentives are also provided to support climate-friendly construction and living.

Objectives were and are also being formulated at regional level, which must be taken into consideration in the development of property and buildings. With the amendment of the Hamburg Climate Protection Act and the second update of the Hamburg Climate Plan in 2023, the Free and Hanseatic City of Hamburg, for example, has developed its own climate goals. It seeks to reduce CO_2 emissions by 70 percent by 2030 compared to the reference year 1990 and – as in Germany nationally - become CO_2-neutral by 2045. Hamburg also has developed funding programs to facilitate the construction of climate-friendly buildings. Bearing the political objectives in mind, it is clear that achieving the climate goals will require an in-depth transformation of all sectors of the economy. At the same time, this offers an opportunity to continue the transformation that is currently underway to help shape the future. The real estate sector plays a central role here with its high proportion of CO_2 emissions. Similar regulations at European, national, and regional level are ambitious, but are primarily characterized by pronounced dynamism. The further advancement of sustainable building requires committed, cooperative, and flexible cooperation between all stakeholders in the real estate industry.

[6] *https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_de*

[7] This envisages an emission-free environment by 2050 and refers, among other things, to environmental pollution in the air, water, and soil, to which the construction sector in particular also contributes.
Compare: *https://ec.europa.eu/environment/pdf/zero-pollution-action-plan/communication_en.pdf*

[8] The aim here is to keep soil ecosystems in the EU in a healthy and resilient state. At the same time, the EU soil strategy aims for net zero area consumption by 2050. Compare: *https://ec.europa.eu/commission/presscorner/api/files/attachment/870413/Factsheet%20on%20Soil%20strategy%20DE.pdf.pdf*

[9] Climate Protection Act. Intergenerational Contract for the Climate, see *https://www.bundesregierung.de/breg-de/themen/klimaschutz/klimaschutzgesetz-2021-1913672#:~:text=Mit%20dem%20ge%C3%A4nderten%20Klimaschutzgesetz%20werden,gegen%C3%BCber%20dem%20Jahr%201990%20verringern.*

Strong Partnership: HafenCity Hamburg GmbH and DGNB

Since it began pursuing its development objectives, HafenCity Hamburg GmbH has regularly engaged in dialog with various players in the real estate sector and beyond - from developers and architects to stakeholders in city administration and politics to citizens and residents. As the successful implementation of ecologically sustainable building solutions in HafenCity to date indicates, this dialog has always provided valuable insights for the adjustment and further development of sustainability requirements and on-site action. A close dialog has also been maintained for many years with the German Sustainable Building Council (DGNB), which was founded in 2007 and of which HafenCity Hamburg GmbH is a founding member.

Both organizations have the common goal of promoting sustainability in the construction and real estate industry, anchoring it in society, and equally considering the environment, people, and economic viability. The DGNB certification system, which was first applied in 2009, is an instrument for planning, optimizing, and assessing sustainable buildings that has established itself in the German-speaking market. Based on experience gained from the previously introduced HafenCity Ecolabel, HafenCity Hamburg GmbH was able to contribute valuable ideas to the development of the system, which is now also acknowledged and used internationally.

Both systems, the DGNB system and the HafenCity Ecolabel, are similar with regard to the indicators and verification methods used, for example. In recent years, they have been repeatedly updated and adjusted to new circumstances and options. This development process has been continuously accompanied by close professional exchange and trusting and productive cooperation between the two institutions. For example, HafenCity Hamburg GmbH contributed to the version of the DGNB certification system during the consultation phase.

With its HafenCity Ecolabel, HafenCity Hamburg GmbH assumed a pioneering role in 2007 and supported development by striving at a very early stage to promote sustainability ambitions in the real estate industry and set new standards. For many years, the maintenance of an independently managed certification system was a necessary, effective instrument that provides impetus for achieving sustainability goals to establish ecologically sustainable building in HafenCity.

Today, however, maintaining an ecolabel that is limited to a local market is increasingly regarded as less useful, for reasons including the high standard achieved with the DGNB certificate and the latter's links with national and international funding policies and regulations.

On June 7, 2023, Dr Andreas Kleinau, CEO of HafenCity Hamburg GmbH, and Dr Christine Lemaitre, Managing Director of the DGNB e. V., presented the DGNB special award Ecolabel at the Building Green sustainability trade fair. Photo: Miguel Ferraz

Considering the common goal of continuing to intensively promote and encourage sustainable building, HafenCity Hamburg GmbH and the DGNB have decided to pool their expertise even more. On October 5, 2022, the two partners signed a comprehensive cooperation agreement at the real estate trade fair Expo Real. Among other things, the decision was taken to develop a joint special award, which will now replace the HafenCity Ecolabel. The cooperatively developed DGNB special award Ecolabel adopts key elements from the previously independently managed sustainability certification system of HafenCity Hamburg GmbH and links them to the DGNB system. The established procedure of HafenCity Hamburg GmbH and its subsidiaries of promoting certification as a binding standard for the areas they develop will be continued with this new certificate.

Introduced in June 2023, the DGNB special award Ecolabel enables certification for projects in the four development areas HafenCity, Billebogen, Grasbrook, and Science City Hamburg Bahrenfeld. The special label is able to achieve what is deliberately not intended in the DGNB system established throughout Germany in its broad scope of application. It aims sustainability requirements at very specific areas, thus reacting to specific location-related factors and the individual aspects of them.

About the DGNB

- Founded in 2007, the DGNB is now Europe's largest network for sustainable building with more than 2,000 member organizations and over 10,000 certified projects in around 30 countries.
- The DGNB certificate assesses the sustainability of buildings throughout their entire life cycle.
- Depending on the type of building, around 30 sustainability criteria are included in the assessment, which are continuously upgraded by independent committees that include experts from HafenCity Hamburg GmbH.

Joint Certification: DGNB Special Award Ecolabel

Aerial view of the four areas Grasbrook, HafenCity, and Billebogen
(at the front in the picture, from left to right) and Science City (at the rear in the picture)

With HafenCity, Billebogen, Grasbrook, and Science City Hamburg Bahrenfeld, HafenCity Hamburg GmbH and its subsidiaries are developing four downtown areas that are not only embedded in and networked with existing urban structures, but will also have a high density themselves.

In order to implement ecologically sustainable local construction and integrate this into the overall concept of a sustainable urban district, a convergence of sustainability measures is therefore required in the projects to be realized, as well as uniformity in the assessment standard. The large role model effect that the four areas have, simply due to their size, must also be taken into consideration. They not only demonstrate how, for example, the greenhouse gas neutrality for buildings envisaged in Hamburg's climate plan can be achieved, but also offer the opportunity to drive forward areas of innovation such as low-carbon, circular construction; building-related energy generation, and rainwater and gray water utilization or to increase urban biodiversity in the years to come.

In this respect, the DGNB special award Ecolabel fulfills an important function: It defines future-oriented, uniform, and locally highly relevant requirements, derives concrete specifications from them, and takes into consideration the location-specific characteristics of the four areas - in particular their downtown location, characterized in particular by:

1. **a high urban density**
2. **a large number of new buildings to be constructed in the immediate neighborhood**
3. **good integration into the city-wide (transportation) infrastructure**

The special location-specific features offer links in particular to ecologically sustainable building and property development within the four areas included in the DGNB special award Ecolabel.

1. Urban density

The development of downtown areas contributes to the economical use of resources, especially in terms of space. The utilization of already developed downtown areas and the restoration of previously used and sealed areas (area recycling) is one principle of the development of sustainable urban precincts. Space-saving construction also implies a high building density, and above all a high utilization density. In view of the intense competition for space, multiple functions such as living, working, or recreation need to optimize their space requirements. If other functions such as energy generation or biodiversity requirements are added, it must be ensured that they also receive sufficient area in the competition for space.

Due to their high degree of sealing, city center areas often have higher temperatures than their surrounding areas (heat island effect). It is therefore crucial to implement measures that ensure a favorable microclimate (e.g., by greening building roofs and façades). The risks originating from other climate change impacts such as heavy rainfall are also intensified by a high urban density. Accordingly, it is important to construct climate-adjusted buildings. In order to compensate for the sealing effect, the creation of open spaces of high ecological quality must be ensured, as they significantly support biodiversity in urban areas and the local quality of life.

The large number of usages in the four areas also requires careful use of other important resources such as drinking water and energy. This in turn requires specifications for the utilization of rainwater and gray water, the efficient use of drinking water and the generation of energy from renewable sources in the buildings. Furthermore, requirements in these aspects also contribute indirectly to sustainable urban development, as the new supply infrastructure to be created for the development of the buildings and the district may then be smaller.

2. Concentration of new buildings

Newly constructed buildings in the direct neighborhood within the four areas result in special planning requirements, as the interaction of all new buildings, especially in terms of their sustainability concepts, is essential for creating special qualities in the quarter. This applies in particular to the design of the outdoor facilities and the architectural quality, and also to the actions to mitigate the effects of climate change. In view of the size of a quarter to be newly developed, all of these aspects also have a significant role model effect and innovative power.

In order to avoid potential conflicts and undesirable interactions with other buildings, infrastructure, and outdoor facilities, the entire planning process must be particularly well coordinated. The use of building information modelling (BIM) helps reduce planning uncertainties and avoid errors. The digital BIM working method can fully depict the various dimensions of construction planning throughout the entire life cycle, right through to operation. Furthermore, it directly visualizes the use of costs and materials for a building, for example, which enables the economical utilization of resources. The use of BIM can also increase planning reliability – for the benefit of all stakeholders, especially when many new buildings are realized in a limited space.

3. Infrastructure

Thanks to their central location, short distances, and extensive public transport services, the four downtown areas offer optimal conditions for mobility for everyone. Residents in urban areas often have the option of living without needing a car of their own. Children, the elderly, and people with disabilities also benefit in particular, as they can be mobile and take care of themselves independently thanks to the short distances involved. It is therefore important to maximize the opportunities for socially just, environmentally friendly, and future-oriented mobility in the four areas. At the property and building level, this is to be promoted accordingly - e.g., by means of barrier-free design and accessibility as well as sufficient numbers, quality, and accessibility of parking spaces for bicycles and mobility aids.

Requirements of the DGNB Special Award Ecolabel

The location-related characteristics described above result in certain requirements, which the DGNB special award Ecolabel checks based on criteria. The criteria are defined in the DGNB systems New Construction and Buildings in Use and can be categorized into six main groups: environmental quality, economic quality, sociocultural and functional quality, technical quality, process quality and site quality. Each of these six groups is assigned criteria and these in turn are assigned indicators.

The DGNB special award Ecolabel mainly specifies requirements at indicator level. The tables over the next pages provide an overview.

- → The adjacent overview serves as non-binding, initial information
- → The binding specifications are found exclusively in the weighting tables of the DGNB special award Ecolabel
- → The weighting tables are available at: *www.dgnb.de/en/certification/specific-applications-of-the-dgnb-system/dgnb-special-award-ecolabel*

Table with non-binding overview of the specifications

DGNB criteria: New Construction, version 2023	**Specifications:**
Environmental quality	
Climate action and energy	Use will be greenhouse gas neutral from 2045; design is low CO_2
Local environmental impact	The materials and products used are environmentally friendly and not harmful to health
Responsible resource extraction	Circular or renewable materials and raw materials are used; wood is certified
Potable water demand and waste water volume	Potable water consumption is low; rainwater and gray water are used
Land use	Development area is located in the center of the settlement structure
Biodiversity at the site	Open spaces and buildings are greened to a quality that promotes biodiversity

= *Degree of fulfillment achieved per criterion*
If all individual requirements are implemented

Economic quality		Degree of fulfillment of main criteria group ≥ 35 %
Life cycle cost		Energy standard accounts for final energy demand and CO2 emissions in use
Value stability		Areas are used efficiently or multiple times
Climate resilience		Adaptation solutions to reduce climate risks are preferably implemented based on nature
Documentation		Planning is performed by means of building information modelling (BIM)
Sociocultural and functional quality		Degree of fulfillment of main criteria group ≥ 35 %
Indoor air quality		Indoor air concentration limits for volatile organic compounds are complied with
Quality of indoor and outdoor spaces		Outdoor facilities are designed to meet requirements; life cycle assessment of outdoor facilities has been compiled
Barrier-free design		Proportion of accessible residential units and workplaces is specified
Site quality		
Local environment		Results of the climate risk analysis are taken into consideration in the building concept

Technical quality		
Quality of the building envelope		The potential of the building envelope has been analyzed; summer heat insulation has been implemented
Use and integration of building technology		Renewable energy is generated on the building; passive building concept has been implemented
Circular construction		Material documentation is carried out with a building resource certificate; moderate target value for implemented recirculation is achieved
Mobility infrastructure		Walking; cycling, and car infrastructure is planned; mobility management is prepared
Process quality		
Quality of project preparation		Specifications for sustainability requirements are prepared as an early specification of objectives
Procedure for urban and design planning		Planning competition has been held, with sustainability requirements taken into consideration
Systematic commissioning		Technical monitoring in the construction and initial utilization phase is implemented
Preparation for sustainable use		Operation and utilization manuals are handed over to the operators
Total degree of fulfillment (New Construction)		**≥ 50 %**

DGNB criteria: Buildings in Use, version 2020	Specifications:
Environmental quality	
Climate action and energy	Consumption data is recorded and analyzed; operation will be greenhouse gas neutral from 2045
Water	Consumption data is recorded and analyzed; target agreement for drinking water consumption is available
Economic quality	
Risk management and long-term asset value	Responsibilities in building use are defined; renewable energy is generated in the building
Condition and operations	Guidelines for maintenance, expansion, and biodiversity have been defined and are complied with
Sociocultural and functional quality	
User satisfaction	Sustainability guidelines for users are available; accessible utilization of the building is possible
Overall degree of fulfillment (Buildings in Use)	**≥ 35 %**

Conclusion

It can be seen from the tables that the DGNB special award Ecolabel, the previous independent sustainability certificate from HafenCity Hamburg GmbH, primarily addresses the ecological dimension of sustainable building, with individual aspects being tightened in the context of the special award and new ones being added.

The focus is on:

- An active contribution to climate protection and climate adaptation by promoting biodiversity, agreeable microclimate, and near-building energy generation from renewable sources
- The avoidance of greenhouse gas emissions during the construction of the building and its outdoor facilities and during operation, as well as the avoidance of substances that are harmful to the environment or health
- Conservation of resources and circularity with regard to energy, water, building products, and materials (circular construction)
- Accessibility
- Socially and environmentally responsible mobility

Process for Receiving the Special Award

Preparation and registration

1

Development of a set of sustainability requirement specifications
Before they can register their project for the DGNB special award Ecolabel, developers need to draw up a set of specifications. Project-specific objectives and conceptual approaches are documented in this set of sustainability requirement specifications. The creation of the specifications also serves as preparation for the architectural competition, in which the conceptual sustainability considerations are incorporated.

Note: Unless otherwise individually agreed, the specifications are deemed the developer's tool.
They do not replace the requirements of the DGNB special award Ecolabel.

2

Agreement with HafenCity Hamburg GmbH
The developer submits the specifications and enters into an "agreement on the application to start the certification process" with HafenCity Hamburg GmbH. Registration with DGNB GmbH will take place after this step (step 3).

3

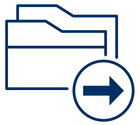
Contract with DGNB GmbH
The application for the DGNB special award Ecolabel is made in combination with the DGNB New Construction and Buildings in Use certificates. The developer enters into a certification contract with DGNB GmbH. Among other things, it specifies which weighting tables serve as the basis for the subsequent conformity check (step 5).

Note: DGNB GmbH is commissioned at the developer's expense. The inspection process for the DGNB special award Ecolabel is integrated into the regular DGNB GmbH inspection process. This means that the costs for the inspection in connection with the special award are included in the certification fees for the general DGNB certificates.

The DGNB special award Ecolabel is issued in combination with a regular DGNB certificate - as the result of an integrated assessment process. The developers go through two test phases: as part of the initial certification process, the DGNB special award Ecolabel is first awarded for a maximum of four years after the New Construction DGNB certificate has been issued. Upon recertification on the basis of the DGNB Buildings in Use certificate, the DGNB special award Ecolabel then becomes permanently valid. Overall, the certification process consists of six consecutive steps, which are summarised in the flow chart.

Planning and construction

4



Delivery of data
The developer calculates the sustainability parameters and develops sub-concepts to meet the certification requirements. They share some data and documents with HafenCity Hamburg GmbH during the planning and construction phase. By evaluating this data, HafenCity Hamburg GmbH gains insight into the adaptation of sustainability requirements, among other things.

Note: Developers share the project data using project profiles. Details of this are governed in the agreement with HafenCity Hamburg GmbH (step 2).

Completion of construction

5

Initial certification:
Submission of documentation for the conformity check
The developer submits all documentation to DGNB GmbH for the conformity check as part of the New Construction of Buildings certification, who then informs HafenCity Hamburg GmbH about whether the audited project meets the requirements of the DGNB special award Ecolabel. If the result of the assessment is positive and all project profiles (step 4) have been submitted in full, HafenCity Hamburg GmbH awards the DGNB special award Ecolabel in the form of a temporary certificate. This initial certification is valid for a maximum of four years.

Use

6

Recertification:
Submission of documentation for the conformity check
The registration and formation of the certification contract take place back in step 3. The developer submits all documentation to DGNB GmbH for the conformity check as part of the Building in Use certification, who then informs HafenCity Hamburg GmbH about whether the project complies with the requirements of the DGNB special award Ecolabel. If the result of the assessment is positive and the last project profile has been submitted in full, the project is awarded the DGNB special award Ecolabel by HafenCity Hamburg GmbH. The recertification means that the special award is permanently valid.

Benefits and Advantages of the DGNB Special Award Ecolabel

Apart from a clearly structured process and the general benefits of certification, the DGNB special award Ecolabel offers developers further advantages. They benefit from an internationally recognized and ambitious certificate that is compatible with national and international funding policies.[10]

The transformation process of sustainable building as a whole is also being driven forward by the joint special award. The pooling of expertise of HafenCity Hamburg GmbH and the DGNB and their many years of experience creates valuable synergies and at the same time raises awareness of this important topic for the future - not only in the four development areas, but also beyond. The DGNB special award Ecolabel sets standards and promotes the development of innovative solutions in sustainable building that are designed to ensure future-oriented urban development. Due to their special qualities, certified buildings not only bring long-term advantages in marketing, renting, and sales, they also make a significant contribution to paving the way to a climate-neutral future as role models and guides.

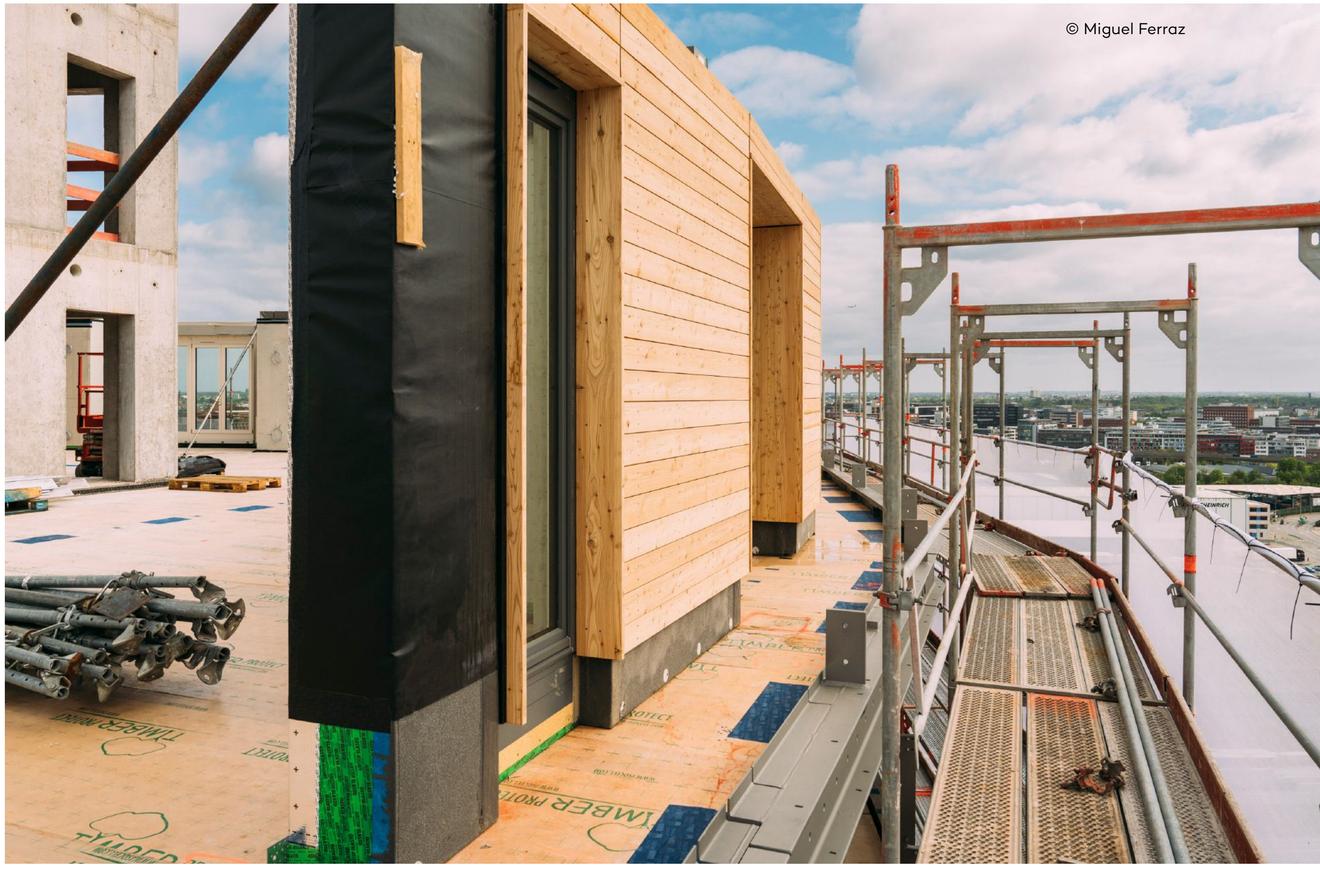
Further information on the process

can be found at *hafencity.com/en/dgnb-certification*. The “6 Steps to the DGNB special award Ecolabel” guide, published jointly by HafenCity Hamburg GmbH and DGNB GmbH, is also available using this link.

The guide is also available via the link *www.dgnb.de/en/certification/specific-applications-of-the-dgnb-system/dgnb-special-award-ecolabel*
The criteria catalog and weighting tables are also available on this page.

[10] The compatibility with other assessment systems can be seen in the respective system comparison, available on the DGNB website at the following link: *https://www.dgnb.de/en/certification/important-facts-about-dgnb-certification/comparison-with-other-assessment-systems*

The Roots building site in HafenCity. The modular timber construction lowers CO_2 emissions during the building phase.



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4 Keeping the Dialog Going

Summary and Outlook

As an instrument of sustainable building, building certification has a considerable impact for the design of high-quality cities and quarters that are adapted to the impacts of climate change, but also for the overall social task of climate protection, particularly with regard to mitigating greenhouse gas emissions. In addition to contributing to the environmental aspects mentioned above, certifications also increase the market value and value stability of a building, enhance the health and well-being of its users, create a reputation, ensure increased competitiveness, and demonstrate innovative strength.

With the DGNB special award Ecolabel, HafenCity Hamburg GmbH and DGNB GmbH have developed an effective, long-term instrument designed and a valuable addition to the already existing DGNB certification program, which consistently continues and reinforces the transformation path that sustainable building is already on. Transformation means constantly monitoring the overall political, social, economic, and technical conditions and reflecting on our own actions. What is ambitious today may already be standard in a few years; what seems impossible today may be common practice the day after tomorrow. Both cooperation partners will therefore closely monitor the application of the special award and adjust requirements at appropriate intervals. Close dialog on good solutions - especially with the developers - is paramount. As practiced in HafenCity in the past, it is also important to promote particularly innovative concepts. The dialog with stakeholders committed to sustainable building has always proved productive to date and is therefore also desirable in the future.

It is of particular importance to monitor the political framework at national and European level. It can be assumed that the highly dynamic nature of regulations such as the EU taxonomy, national funding, and the Building Energy Act (GEG) will continue in the years to come. The DGNB special award Ecolabel, provides an opportunity to react to new or changed requirements. Here, too, the aim is to seek professional dialog and contribute practical experience to the discussions in order to promote practical and above all implementable regulations in planning processes, standards, and approval procedures that actually promote sustainable building. It can be assumed that the challenges of climate change for the construction and real estate sector will continue to increase in the coming years. This will result in an even higher demand for climate-friendly buildings and the expertise to build them, and solutions for circular, resource-conserving, and climate-adapted construction will continue to gain in significance. In addition, the creation of sufficient living space for everyone will be an essential factor. The focus should be on the realization of cost-efficient buildings with a high and long-term value.

Knowing that sustainable building addresses environmental, economic, and social issues and has a direct impact on the everyday lives of users and also on CO_2 emissions, the importance of the construction and real estate sector for the tasks that lie ahead in the course of climate change is clear and should not be underestimated. It is therefore of central importance that all stakeholders take their responsibility seriously and utilize and coordinate the tools and opportunities available accordingly. Only this way can sustainable building become standard practice in the long term and the path to a climate-neutral society succeed.

Published by:

HafenCity Hamburg GmbH,
Osakaallee 11, 20457 Hamburg,
www.hafencity.com

Responsibility under media law held by:
Melanie Kausch

Text:
Melanie Kausch, Andrea Bittelmeyer

Design: rock&stars digital GmbH

Proofreading: Dialecta
Zentrum für internationale Sprachdienstleistungen