OEGNB - Open Source Building Assessment

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ÖGNB sustainable building assessment/quality label

The ÖGNB quality label is based on the TQB assessment system.

TQB (Total Quality Building) is a planning, assessment and quality control tool for the building sector tailored to Austrian construction practice.

First of all, TQB aims at building optimization in the planning stage.

It includes a criteria and goal catalogue, which defines requirements for sustainable buildings, and the procedure for assessing and receiving an energy performance certificate (“Building Passport”).

ÖGNB assessment criteria (TQB-Tool)

	Category and criteria (German original)	English translation
A	**Standort und Ausstattung**	**Location and amenities**
A.1	Infrastruktur	Infrastructure
A.2	Standortsicherheit und Baulandqualität	Security
A.3	Ausstattungsqualität	Amenities
A.4	Barrierefreiheit	Accessibility
B	**Wirtschaftlich und technische Qualität**	**Economical and technical quality**
B.1	Wirtschaftlichkeit im Lebenszyklus	Life cycle cost assessment
B.2	Baustellenabwicklung	Construction site management
B.3	Flexibilität und Dauerhaftigkeit	Flexibility and longevity
B.4	Brandschutz	Fire prevention
C	**Energie und Versorgung**	**Energy and water**
C.1	Energiebedarf	Energy consumption
C.2	Energieaufbringung	Energy production
C.3	Wasserbedarf und Wasserqualität	Water consumption and water quality
D	**Gesundheit und Komfort**	**Health and comfort**
D.1	Thermischer Komfort	Thermal comfort
D.2	Raumluftqualität	Indoor air quality
D.3	Schallschutz	Noise protection
D.4	Tageslicht und Besonnung	Daylight and sun
E	**Ressourceneffizienz**	**Resource efficiency**
E.1	Vermeidung kritischer Stoffe	Avoidance of harmful substances
E.2	Regionalität, Recyclinganteil, zertifizierte Produkte	Quality of products (local production, recycling material, certified products)
E.3	Ökoeffizienz des Gesamtgebäudes	Eco-efficiency of the entire building
E.4	Entsorgung	Demolition and disposal

Development of ÖGNB assessment Tool: Total Quality Building (TQB)

1st Step (1998): GBC (Green Building Challenge) project in Austria GBC-Handbook of the D-A-CH (Germanï Austrianï Swiss) Brick and Tile Industry, published 2000

2nd Step (2003): Development of the Austrian TQ (Total Quality) Information Package and Assessment Tool, resulting in a certificate

3rd Step (2009): Further development and relaunch: TQB ï Total Quality Building Assessment, and foundation of the ÖGNB ï Österreichische Gesellschaft für Nachhaltiges Bauen (Austrian Sustainable Building Council)

Internet-based tool free of charge: www.oegnb.net

ÖGNB (Austrian Sustainable Building Council) provides the internet-based tool for assessment, a discussion-platform for further developing the assessment scheme together with the members, and runs the certification procedure based on the TQB-tool.

Elements of building assessment schemes

(1) Assessment system

- **Criteria:** which kind of information is needed for assessment (e.g. heating energy consumption)
- **Indicators:** how to describe the performance of the defined criteria (e.g. kilowatt hours per square meter heated gross area and year)
- **Assessment scale:** defines the requirements; which performance is good and which one is bad by allocation of scores (e.g. heating energy consumption less than 15 kilowatt hours per square meter heated gross area and year receives the highest score)
- **Weighting:** which criteria are more important than others, and by how much (e.g. more points are allocated to energy related criteria than to material related criteria)

(2) Assessment procedure

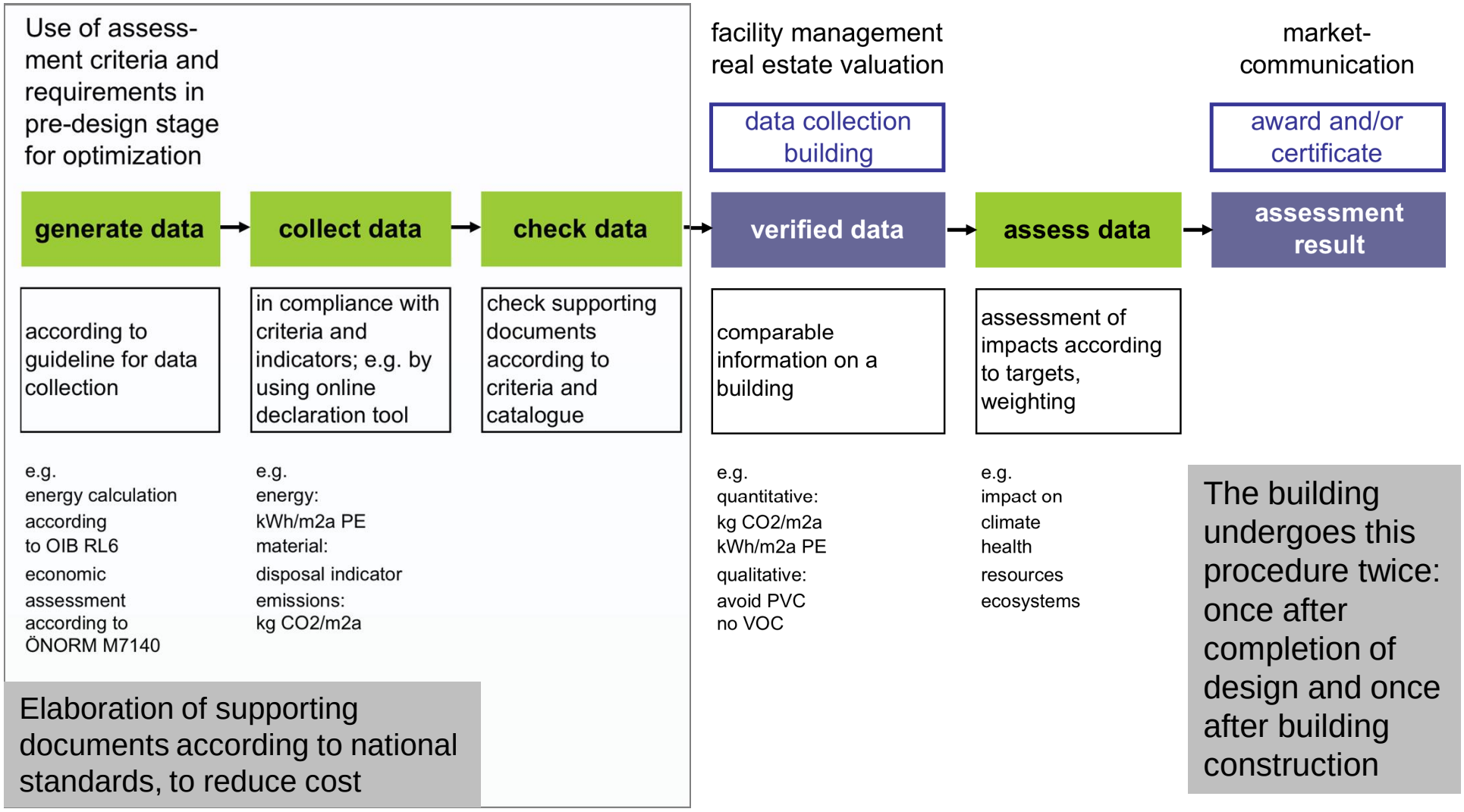
- Data collection and check of data
- Awarding of points based on the data provided
- Awarding the certificate

sustainability assessment of buildings as a risk management tool

The assessment result contains two parts:

- **Compilation of quantitative data and qualitative information about the building.**
- Assessment result for market communication, in order to tell consumers how good the performance of the building is.

ÖGNB assessment criteria (TQB-Tool)



Objective: To facilitate integrated design for high performance buildings
To use assessment criteria as guideline for building optimisation

Giefinggasse, Wien: ENERGYbase Client: Wiener Wirtschaftsförderungsfonds	Office building with research infrastructure New construction	
Innsbruck, Tirol: Josef-Franz-Huter-Straße / Sieglanger Client: WE Wohnungseigentum Tiroler gemeinnützige Wohnbau GmbH	Residential building New construction	
Niklasdorf, Steiermark: Eine Welt Handel AG Betriebsgebäude Client: Eine Welt Handel AG	Whole sale store New construction	
Linz, Oberösterreich: Passivhaussanierung Markartstraße Client: GIWOG	Residential building Renovation	
Ludesch, Vorarlberg: Gemeindezentrum Ludesch Client: Marktgemeinde Ludesch	Community centre New construction	
Kierling, Niederösterreich: Passivhaussanierung Kierling Planung Client: BUWOG	Residential building Renovation	
Schwanenstadt, Oberösterreich: Passivhaussanierung Schule Schwanenstadt Client: Stadtgemeinde Schwanenstadt	School building Renovation	
Stadl-Paura, Oberösterreich: ChristophorusHaus Client: MIVA	Multifunctional building New construction	

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Various criteria frameworks are available for new construction and renovation and all types of building use

Buildings assessed with TQB (examples)

Dissemination pogram to accelerate market uptake: klima:aktiv building standard

- Criteria system
  - **A Design and Construction**
    - Several Subcriteria
  - **B Energy and Supply**
    - Several Subcriteria
  - **C Materials and Structure**
    - Several Subcriteria
  - **D Comfort and Indoor Air Quality**
    - Several Subcriteria

in compliance with the energy certificate according to EPBD 2002/91/EU

- Categories A B C D are the same for residential buildings and all types of non residential buildings; subcriteria are different.

Energy certificates and other building assessment systems: stepwise system

System	Background
Energy Certificate	Directive 2002/91/EU, national legislation; Recast 2010/31/EU
klima:aktiv Building Standard	Declaration according to criteria system issued by the Austrian Federal Ministry Lebensministerium
Total Quality (TQB) Building Certificate	Certification scheme (third party certification) based on research projects funded by Austrian ministries
Green Building Award	Programm of the European Commission

Since 2009: TQB building assessments under the Austrian Sustainable Building Council ÖGNB

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TQB IN DETAIL

A			Site and Facilities	up to 200 credits
A	**1.**		**Infrastructure**	**max. 50**
A	1.	1.	Access to public transport	max. 20
A	1.	2.	Local supply (shop, bank, other services)	max. 10
A	1.	3.	Social infrastructure (kindergarten, school, pharmacy, etc.)	max. 10
A	1.	4.	Infrastructure for recreation (cinema, theatre, sports facilities, etc.)	max. 10
A	**2.**		**Safety and Sustainability of Site**	**max. 50**
A	2.	1.	Risks of natural hazards (flood, earth quake, avalanche, etc.)	max. 10
A	2.	2.	Land use, preservation of biodiversity (brown-field, no green-field, green roofs, etc.)	max. 20
A	2.	3.	Magnetic fields by low frequency electro-magnetic fields (distance to electricity grids)	max. 10
A	2.	4.	Low-frequency pulsed high-frequency fields (distance to mobile stations)	max. 10
A	**3.**		**Facilities**	**max. 50**
A	3.	1.	Safe access routes (internal/external), biking facilities	max. 10
A	3.	2.	Site facilities and amenities of the flats	max. 20
A	3.	3.	Dedicated free spaces of flats (gardens, balconies, terraces)	max. 10
A	3.	4.	Protection against burglary	max. 10
A	**4.**		**Barrier Free Building**	**max. 50**
A	4.	1	Barrier free accessibility	max. 25
A	4.	2	Barrier free dwelling units	max. 25

B			**Economic and Technical Performance**	**up to 200 credits**
B	**1.**		**Economic Efficiency**	**max. 100**
B	1.	1.	Life cycle cost assessments (simplified calculation of operation costs, full life-cycle-cost calculations for design alternatives)	max. 50
B	1.	2.	Integrative planning (interdisciplinary design team, several design alternatives, competition)	max. 25
B	1.	3.	Operation and Maintenance (manual available, facility management system, smart metering)	max. 25
B	**2.**		**Construction Site Management**	**max. 30**
B	2.	1.	Logistics and Transport Management	max. 20
B	2.	2.	Waste management	max. 10
B	**3.**		**Durability and Adaptability**	**max. 40**
B	3.	1.	Durability and adaptability of the construction concept (adaptability to changing user requirements)	max. 20
B	3.	2.	Flexibility of building services (adaptability to changing user requirements)	max. 20
B	**4.**		**Fire protection**	**max. 30**
B	4.	1.	Construction elements	max. 10
B	4.	2	Fire detection elements	max. 10
B	4.	3	Fire extinguishing systems	max. 10

C			Energy and Water	up to 200 credits
C	**1.**		**Energy demand**	**max. 75**
C	1.	1	Heating demand (45 credits, if passive house standard is achieved; up to 45 depending on heating demand equal or better than building code)	max. 45
C	1.	2	Final energy demand (25 credits, if passive house standard is achieved; up to 25 depending on whether performance is equal or better than the requirement)	max. 25
C	1.	3	Airtightness of the building (10 credits, if passive house standard is achieved; up to 10 depending on whether performance is equal or better than the requirement)	max. 10
C	1.	4	Avoidance of thermal bridges	max. 10
C	**2.**		**Energy supply**	**max. 75**
C	2.	1	Primary energy (140 - 40 or less kWh/m^2.a (gross area)	max. 50
C	2.	2	Photovoltaic system (1-5 or more W_{peak}/m^2.a (gross area)	max. 20
C	2.	3	Energy efficient ventilation	max. 10
C	2.	4	CO2-Emissions from building operation (27 ï 4 or less kgCO_2/m^2.a (gross area)	max. 50
C	**3.**		**Water**	**max. 50**
C	3.	1	Individual cost control	max. 5
C	3.	2	Use of rainwater	max. 15
C	3.	3	Water efficiency of sanitary facilities	max. 20
C	3.	4	Hygienic quality of cold and hot water	max. 25

D			Health and Comfort	up to 200 credits
D	**1.**		**Thermal comfort**	**max. 50**
D	1.	1	Thermal comfort in winter	max. 20
D	1.	2	Thermal comfort in summer	max. 30
D	1.	3	Building automation and influence by users	max. 20
D	**2.**		**Indoor air quality**	**max. 50**
D	2.	1	Ventilation systems	max. 25
D	2.	2	Low emitting materials (coatings, flooring, wooden materials, adhesives)	max. 40
D	2.	3	Moisture protection	max. 10
D	**3.**		**Sound insulation**	**max. 50**
D	3.	1	Ambient noise level (exterior)	max. 12
D	3.	2	Good acoustic planning	max. 12
D	3.	3	Airborne sound insulation values (separating walls)	max. 12
D	3.	4	Airborne sound insulation values (separating floors)	max. 12
D	3.	5	Impact sound insulation values (separating floors)	max. 12
D	3.	6	Interior ambient noise level (night)	max. 12
D	**4.**		**Daylighting**	**max. 50**
D	4.	1	(Point) Daylight factor in living rooms	max. 25
D	4.	2	Sun hours in wintertime in living rooms	max. 25

E			**Resource Efficiency**	**up to 200 credits**
E	**1.**		**Avoidance of critical materials**	**max. 50**
E	1.	1	HFC: insulation, foams, cooling solvents	max. 15
E	1.	2	PVC: water pipes, ventilation ducts, power installations, flooring, etc.	max. 35
E	1.	3	VOC (except interior fittings): bitumen coatings, adhesives	max. 5
E	**2.**		**Regional, recycled / re-used and eco-labelled products**	**max. 50**
E	2.	1	Regional products and construction materials	max. 20
E	2.	2	Recycled or re-used materials	max. 15
E	2.	3	Eco-labelled products	max. 30
E	**3.**		**Ecoefficiency of the building (life cycle view)**	**max. 60**
E	3.	1	Ecological index OI3 (PE non ren., GWP, AP)	max. 60
E	**4.**		**Waste Disposal**	**max. 60**
E	4.	1	Disposal index	max. 60

Non-profit association ÖGNB

The Austrian Sustainable Building Council (ÖGNB) was initiated and founded in Austria in January 2009, by a number of renowned and independent institutions (see below) in the field of sustainable building.

Membership is open to all who are interested, to institutions and businesses seeking to participate actively in **supporting the Austrian building industry in the transition towards sustainable building.**

The Austrian Sustainable Building Council is a non-profit association which addresses everyone interested in promoting sustainable building in Austria.

ÖGNB decision-making bodies include businesses, science and the public sector equally; attention is paid to ensure that there is no absolute majority in the body of one stakeholder group.

The ÖGNB network

Bau.Energie.Umwelt.Cluster NÖ (Construction.Energy.Environment. Cluster Lower Austria) Haus der Zukunft (Building of Tomorrow), IG Lebenszyklus Hochbau (IG Life-cycle Building Construction), klima:aktiv, nextroom, Staatspreis Architektur und Nachhaltigkeit (National Award for Architecture and Sustainability), …

ÖGNB fosters the exchange of information and variable forms of cooperation, e.g. participation in working groups or joint development of contents. It provides the ÖGNB building assessment system as well as technical support, e.g. for the scientific Council of the Environment and Building Initiative.

Das Programm Cluster Niederösterreich wird mit EU - Mitteln aus dem Europäischen Fonds für regionale Entwicklung (EFRE) und Mitteln des Landes Niederösterreich kofinanziert.

Thank you for your attention!

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