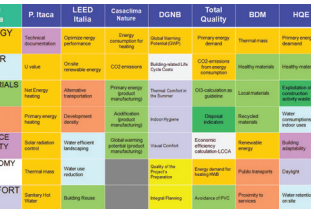
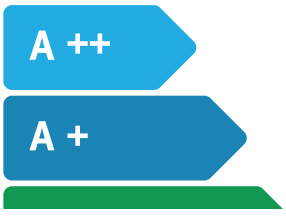
ENERBUILD

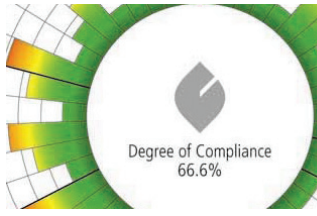
Result 6.1

Transnational comparison of instruments according to ecological evaluation of public buildings

February 2011







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EUROPEAN TERRITORIAL COOPERATION
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Transnational comparison of instruments according to ecological evaluation of public buildings

Editor

Arch. Andrea MORO
Regione Piemonte

Andrea Moro, architect, since 1996 works in the field of sustainable buildings. He is the president of the international association iiSBE and of its Chapter iiSBE Italia. Its activity is focused on building environmental assessment methods and he's the scientific referent of the Italian national rating system Protocollo ITACA. He is also a member of international work groups related to UNEP (United Nations Environment Program) and SB Alliance dealing with the development of common benchmarks and indicators.

He is the scientific referent of the Sustainable Building department of Environment Park.

Introduction

In the light of the increasing importance of the energy thematic and the related efficiency measures, worldwide initiatives have been found to create models to assess environmental and energy-efficient building assets.

The project ENERBUILD, consisting of a consortium of public organizations in the Alps, has set itself the goal to create a common tool particularly for public policy makers. Crucial in this context is that this instrument makes it possible to enable requirements for the design and construction as well as fiscal measures. Such an instrument is a basic decision support for public property developers in the direction of ecological construction. Public property developers have a great responsibility in the sense of a role model for the development of environmental and energy-efficient building standards.

To develop a standard model for decision makers a comprehensive market knowledge of the existing systems is required. The present study was accomplished in charge of the project partner Regione Piemonte, led by Arch. Andrea Moro. The result is a comprehensive overview of Europe's increasingly used valuation models. The models are compared using a uniform grid and are opposed to the concept developed in the ENERBUILD project.

The study provides an important basis on the way towards a common approach to environmental and energy efficient public buildings. As project coordinator, I would like to thank sincerely the project partners of Regione Piemonte for the detailed work.

Franz Rüf
Regional Development of Vorarlberg

Note on further results of ENERBUILD

Education

- Overview of education programs and vocational trainings for energy saving and producing buildings in the Alpine Space

Examination

- Summarizing survey on existing buildings on healthy living with new and advanced construction technology
- Killer arguments and opportunities for energy-efficient construction and the passive house
- User habits, impact on energy consumption in passive houses - results of a comprehensive long-term measurement

Efficiency

- Certification of energy-efficient public buildings Summary of instruments in the Alpine Space
- **Transnational comparison of instruments according to ecological evaluation of public buildings**
- ENERBUILD Tool: Transnational Pilot Testing on 46 Buildings and Experiences on Advisory Services

E-Producing

- Synthesis on producing energy on buildings in the Alpine Space
- Green Electricity? - Yes, please! 100% local Green Electricity in combination with private funding for the development of power plants on buildings using the example of Vorarlberg
- Eco Power Stock Exchange – In-depth information for monitoring offices

Innovation

- The Alpine World of Innovation - A collection of innovative examples in planning processes, pilot initiatives and stimulation of innovation

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Transnational comparison of instruments according to ecological evaluation of public buildings

Scope of the Study

This document illustrates the results of the transnational comparison study carried out on eight environmental labels for buildings actually used in the Alpine regions.

The objective was to understand communalities and differences between the assessment systems in the way to identify what are the needs to facilitate a future harmonization at European level. A common approach to environmental building assessment would facilitate the comprehension, dissemination and application of certification systems by the private and public stakeholders. At contrary, the proliferation of labels in the last period has created a confused scenario that need to be simplified.

The systems analyzed are „environmental" labels. This means that the assessment includes issues other than energy as: quality of location, construction materials, water consumptions, emissions, waste, indoor comfort, quality of service, etc.

One result of the project ENERBUILD is the common used ENERBUILD tool. This study gives a short response to the tool and further cooperation among regions in Europe.

The comparison study has been carried out by a team of four project partners coordinated by the Regione Piemonte. The team included: Provincia Autonoma di Trento, European Academy Bolzano (Eurac) and Rhônalpénergie-Environnement. The report finalization has been coordinated by Andrea Moro (Regione Piemonte).

The labels included in the comparison study are:

- Protocollo Itaca Regione Piemonte (Italy)
- Leed Italia (Italy)
- Casaclima Nature (Italy)
- DGNB (Germany)
- BDM (France)
- HQE (France)
- Total Quality Building (Austria)
- Minergie P-Eco (Switzerland)

Overview of the environmental labels in the Alpine Regions

In the Alpine Regions considered in the study (Italy, France, Switzerland, Germany and Austria) are actually applied different systems for environmental building certification. The origin and scope of the environmental labels is various and the approach to building certification is not homogeneous.

Italy

Three are the most significant environmental labels in the Italian Alpine regions: Protocollo ITACA, LEED Italia and Casaclima Nature.

Protocollo ITACA is promoted by the Italian Regions and it has a public origin. The assessment system is managed by ITACA (Federal Association of the Italian Regions) with the scientific support of iiSBE Italia and ITC-CNR. Protocollo ITACA is based on the international assessment methodology SBMethod of iiSBE and it has been contextualized at local level by several regions: Piemonte, Liguria, Valle d'Aosta, Veneto, Friuli Venezia Giulia, Lazio, Marche, Toscana, Umbria, Puglia and Basilicata. At regional level the Protocollo ITACA is mostly used to support specific policies to promote sustainable building. In particular in the framework of the social housing programs, where economic incentives are given on the base of the environmental performance achieved. Beside the regional versions, in 2011 a national version of Protocollo ITACA will be delivered and a national certification process will be implemented also. This national certification is intended to create a point of reference for the market stakeholders. The certification system is voluntary.

LEED Italia, launched in 2010, is managed and promoted by GBC Italia (Green Building Council) and it is the Italian adaptation of the U.S. LEED. The origin of the system is mainly from the private/industrial sector. LEED Italia is supported and recognized by the Province of Trento. The certification LEED Italia is voluntary. The system is articulated in different versions for new buildings, existing buildings, small houses and neighborhoods. The Province of Trento adopted LEED in incentive based polices for green building. LEED Italia is the unique European adaptation of the US LEED. GBC Italia is a no profit association open to all the stakeholders of the building sector and it is part of the World Green Building Council.

Casaclima Nature is an „expansion" of the Casaclima energy standard. The certification is managed by the Agenzia Casaclima, a public organization located in Bolzano. The Casaclima certification has been the first in Italy introducing the energy rating for buildings and it is mandatory in the Provice of Bolzano, while outside the province it is voluntary.

France

The first national French certification system is HQE (Haute Qualité Environmentale). It is promoted by the no profit Association pour la Haute Qualité Environnementale (ASSOHQE), located in Paris and founded in 1996. The HQE certification is voluntary. It is applicable to new and existing buildings for different uses. The certification system is managed by AFNOR Certification with the official name of „NF ouvrage – Démarche HQE". AFNOR Certification appointed three certification bodies (Cerqual, Cequami, Certivea) to operate the certification system as third independent party. The first HQE certification (NF Office Buildings) was launched in 2005, the certification for residential buildings in 2007. The HQE certification is applied in all France.

The BDM (Bâtiments Durables Méditerranéens) label is proposed by the BDM no profit association that was established in 2008, recognized as «Pôle Régional d'Innovation et de Développement Economique Solidaire (PRIDES)» by the Région PACA. The main principle of the label, as for the Italian Protocollo ITACA, is the total contextualization of the assessment criteria to the local level. The BDM assessment system is under adaptation for other French regions also in the Alpine and Atlantic areas. The certificate is issued by the BDM association.

Germany

The no profit association DGNB (German Green Building Council) is operating the DGNB certification. The origin of the system is from the private sector. Actually the DGNB certification is also recommended by the BMVBS (Federal Ministry of Transport, Building and Urban Development) for good planning and building practice. The DGNB system is available for occupancy profiles in high demand: office and administrative buildings, educational facilities, retail buildings, industrial buildings and residential buildings.

Austria

The TQB (Total Quality Building) certification system is managed by the ÖGNB a non-profit organization (Austrian Sustainable Building Council). The first version of the assessment system (Total Quality) was developed in 2001 with subsidies from the Austrian Federal Government and based on the GBC's (Green Building Challenge) GBTool. In 2010 the TQB system has been updated with regard to the international trends and to other Austrian building assessment systems. It is possible to certify residential buildings, offices, commercial buildings; schools, hotels, and shopping centers. TQB is the most applied environmental certification system in Austria.

The Austrian Green Building Council (ÖGNI) in collaboration with the German DGNB has operated an adaptation of the DGNB assessment system to Austria. The first buildings are under certification.

Switzerland

The most relevant Swiss certification system is Minergie - ECO, supported by the Swiss Confederation, the Swiss Cantons along with Trade and Industry. The certification is operated by the Minergie non profit organization. Minergie – ECO integrates the Minergie label with issues related to the environment and the comfort. It's possible to certify residential buildings, office buildings and schools.

Comparison methodology

A comparison methodology has been identified in the way to analyze the most important technical and management aspects of every certification label.

A „Data collection" form has been filled by the project partners involved in the WP 6.1.

The comparison elements adopted in the study are:

- Basic information: name of the tool/label, the organization that developed the tool and that is managing it, countries where the label is applied, date of issue of the label and web page;
- Users: who are the stakeholders interested in the use of the certification. The kind of users allows to understand the scope of the assessment system and its focus;
- Time and physical boundaries. The time boundaries describe the life cycle stages of the building that are assessed (from pre-design to operation). The physical boundaries deal with the scale assessed (building, building + site, neighborhood);
- Building uses: applicability of the assessment to different building types. This information gives an idea about the extension of the label's applicability;

Transnational comparison of instruments according to ecological evaluation of public buildings

- Structure of the tool. A complete description of this aspect is fundamental to deeply understand the nature of the system. The collected information regards:
  - hierarchic levels of the tool and number of criteria. The objective is to understand how is complicated the assessment tool and indirectly its time efficiency in the use;
  - number of criteria per issue. The objective is to evaluate the distribution of criteria with regards to the main three sustainability issues: environmental, social and economic. This analysis indicates how balanced is the system toward a complete sustainability assessment;
  - number of quantitative criteria. A quantitative criterion is based on the calculation of an indicator based on a physical quantity. A qualitative criterion is based on some type of checklist, statement etc. The percentage of quantitative criteria vs. qualitative criteria is an indication of the level of objectivity of the assessment system;
  - list of criteria. All the criteria are listed as they are organized in the tool. This information allows to understand the different issues assessed;
  - list of criteria per issue. The objective is to have a basic overview of how much the tool is „sustainable". It means at what level it covers the basic sustainability environmental, social and economic issues. Some time the boundaries between the issues are not very clear and some criteria may belong into more than one issue. In this case the criterion was assigned to the issue where the impact is major. All the comfort related criteria have been considered as „social" because dealing with the human being and not with the environment;
  - list of criteria per weight. This information allows evidencing the most important criteria in the tool. The weight of each criterion has been calculated from the weights distribution or number of points/ credits available for the criterion.
- Certification process. The analysis regards the structure of the certification process, the actors involved and the costs;
- Outputs. A description/sample of the final result delivered at the end of the certification process (statement, letter, label, etc.);
- Legislation. The link of the assessment tool to regulations, technical standards

PROTOCOLLO ITACA
Regione Piemonte ITALY

Basic information

Name of the Tool	Protocollo ITACA 2009 Regione Piemonte
Tool developer	ITACA, iiSBE Italia, ITC CNR
Used in following countries	Regione Piemonte
First issued (year)	2009
Webpage	www.regione.piemonte.it

Users

Designers	■
Consultants	■
Construction companies	■
Investors	
Public institutions	■
Consumers / end -users	
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	
Schools	
Retail	■
Industrial	
Healthcare	
Hotel	
Other (please specify)	

Structure of the assessment system

Building use: residential

Number of hierarchic levels	3
Number of issues at top level	5
Number of issues at middle level	11
Number of criteria (low level)	20
Number of environmental criteria	13
Number of social criteria	7
Number of economic criteria	0
Percentage of quantitative criteria	45%
Number of mandatory criteria	20

List of Criteria

1.1.2 Level of urbanisation of site (Livello di urbanizzazione del sito)

2.1.2 U value of the envelop (Trasmittanza termica dell'involucro edilizio)

2.1.3 Net Energy for heating (Energia netta per il riscaldamento)

2.1.4 Primary Energy for heating (Energia primaria per il riscaldamento)

2.1.5 Solar radiation control (Controllo della radiazione solare)

2.1.6 Thermal mass (Inerzia termica dell'edificio)

2.2.1 Sanitary hot water from renewable sources (Energia termica per ACS)

2.2.2 Electric energy from P.V. (Energia elettrica)

2.3.1 Materials from renewable sources (Materiali da fonti rinnovabili)

2.3.2 Re-used and recycled materials (Materiali riciclati/recuperati)

2.4.2 Potable water for indoor uses (Acqua potabile per usi indoor)

3.1.2 Emissions in the operation (Emissioni previste in fase operativa)

4.2.1 Air temperature (Temperatura dell'aria)

4.3.1 Daylighting (Illuminazione naturale)

4.5.1 Magnetic fields – 50 Hz (Campi magnetici a frequenza industriale (50Hertz))

5.2.1 Technical documentation (Disponibilità della documentazione tecnica degli edifici)

5.4.1 Quality of the clable system (Qualità del sistema di cablatura)

5.4.2 Videocontrol (Videocontrollo)

5.4.3 Anti intrusione, Controllo accessi e Safety

5.4.4 Systems integration (Integrazione sistemi)

PROTOCOLLO ITACA
Regione Piemonte ITALY

Criteria by issues

(Environmental, Social, Economic)

Environmental

1.1.2 Level of urbaiosation of site (Livello di urbanizzazione del sito)

2.1.2 U value of the envelop (Trasmittanza termica dell'involucro edilizio)

2.1.3 Net Energy for heating (Energia netta per il riscaldamento)

2.1.4 Primary Energy for heating (Energia primaria per il riscaldamento)

2.1.5 Solar radiation control (Controllo della radiazione solare)

2.1.6 Thermal mass (Inerzia termica dell'edificio)

2.2.1 Sanitary hot water from renewable sources (Energia termica per ACS)

2.2.2 Electric energy from P.V. (Energia elettrica)

2.3.1 Materials from renewable sources (Materiali da fonti rinnovabili)

2.3.2 Re-used and recycled materials (Materiali riciclati/recuperati)

2.4.2 Potable water for indoor uses (Acqua potabile per usi indoor)

3.1.2 Emissions in the operation (Emissioni previste in fase operativa)

5.2.1 Technical documentation (Disponibilità della documentazione tecnica degli edifici)

Social

4.2.1 Air temperature (Temperatura dell'aria)

4.3.1 Daylighting (Illuminazione naturale)

4.5.1 Magnetic fields – 50 Hz (Campi magnetici a frequenza industriale (50Hertz))

5.4.1 Quality of the clable system (Qualità del sistema di cablatura)

5.4.2 Videocontrol (Videocontrollo)

5.4.3 ?Anti intrusione, Controllo accessi e Safety

5.4.4 Systems integration (Integrazione sistemi)

Criteria by weight

Weight 12%

5.2.1 Technical documentation (Disponibilità della documentazione tecnica degli edifici)

Weight 6,6%

2.1.2 U value of the envelop (Trasmittanza termica dell'involucro edilizio)

2.1.3 Net Energy for heating (Energia netta per il riscaldamento)

2.1.4 Primary Energy for heating (Energia primaria per il riscaldamento)

2.1.5 Solar radiation control (Controllo della radiazione solare)

2.1.6 Thermal mass (Inerzia termica dell'edificio)

Weight 6,0%

2.2.1 Sanitary hot water from renewable sources (Energia termica per ACS)

2.2.2 Electric energy from P.V. (Energia elettrica)

2.4.2 Potable water for indoor uses (Acqua potabile per usi indoor)

3.1.2 Emissions in the operation (Emissioni previste in fase operativa)

Weight 4,8%

4.2.1 Air temperature (Temperatura dell'aria)

Weight 4,5%

2.3.1 Materials from renewable sources (Materiali da fonti rinnovabili)

2.3.2 Re-used and recycled materials (Materiali riciclati/recuperati)

Weight 3,6%

4.3.1 Daylighting (Illuminazione naturale)

4.5.1 Magnetic fields – 50 Hz (Campi magnetici a frequenza industriale (50Hertz))

Weight 3,2%

5.4.1 Quality of the clable system (Qualità del sistema di cablatura)

Weight 2%

1.1.2 Level of urbanisation of site (Livello di urbanizzazione del sito)

Weight 1,6%

5.4.2 Videocontrol (Videocontrollo)

5.4.3 Anti intrusione, Controllo accessi e Safety

5.4.4 Systems integration (Integrazione sistemi)

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

The „Protocollo ITACA Regione Piemonte 2009" certificates are actually issued by iiSBE ITALIA on the base of a MOU between Regione Piemonte and ITACA, the Federal Association of Italian Regions.

Synthetic description of the certification process

The certification process is basically a self assessment validated by iiSBE Italia.

Main steps of the certification process:

- Self assessment carried out by the design team
- The Protocollo ITACA technical documents are sended to iiSBE Italia
- iiSBE Italia start a validation process. Possible audit on specific criteria
- iiSBE Italia at the end of the validation process issues the certificate at the design stage
- iiSBE Italia assess the conformity of the building at the as built stage to the validated Protocollo Itaca at the design stage
- iiSBE Italia issues the final certification

Cost of the certification

Free

Outputs of the certification process

The output of the certification process is a statement by iiSBE Italia on the performance reached by the building at the as build phase.

Connection to legislation and technical standards

Regulations

There are not regulations based on Protocollo ITACA Regione Piemonte 2009.

Standards

All the criteria included in the assessment systems are totally liked to the national technical standards of UNI.

Incentives or granting schemes

The Protocollo ITACA Regione Piemonte 2009 is actually employed in two incentive programs for social housing (10.000 apartments by 2012) and for private single houses (Hosing plan). On the base of the score reached it's possible to receive a financial contribution up to 10.000 Euro per apartment or a construction volume bonus.

LEED ITALIA (Leadership in Energy and Environmental Design)

Basic information

Name of the Tool	LEED Italia
Tool developer	GBC Italia
Used in following countries	GBC Italia
First issued (year)	2010
Webpage	www.gbcitalia.org

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	■
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	
Retail	
Industrial	■
Healthcare	■
Hotel	■
Other (please specify)	

Structure of the assessment system

Building use: all

Number of hierarchic levels	2
Number of issues at top level	7
Number of issues at middle level	-
Number of criteria (low level)	64
Number of environmental criteria	36
Number of social criteria	10
Number of economic criteria	4
Percentage of quantitative criteria	77%
Number of mandatory criteria	8

List of Criteria

LEED Italia is a voluntary certification program that can be applied to any building type and any building lifecycle phase.

It promotes design and construction of sustainable buildings, with a low environmental impact, by classifying their performance in seven evaluation areas:

SS	Sostenibilità del Sito (SS Sustainable Site)
GA	Gestione delle Acque (WE Water Efficiency;)
EA	Energia e Atmosfera (EA Energy and Atmosphere)
MR	Materiali e Risorse (MR Material and Resources)
QI	Qualità Ambientale Interna (IEQ Indoor Environmental Quality)
IP	Innovazione nella Progettazione (D Innovation in Design)
PR	Priorità Regionale (RP Regional Priority)

Following there is a short description of the goals of the seven evaluation areas and the list of all related criteria.

Criteria by issues (Environmental, Social, Economic)

Every LEED credit faces an environmental issue, as the main goal of the rating system is reducing or eliminating negative environmental impacts through high-performance, market-leading design, construction, and operations practices.

But LEED credits could interest other design aspects: they often face economic issue and sometimes face community (social) issue.

In fact, as an added benefit, green operations and management reduce operating costs, enhance building marketability, increase workers' productivity, and reduce potential liability resulting from indoor air quality problems.

Criteria by weight

In LEED Italia, the points distribution between credits is based on the potential environmental impacts and human benefits of each credit .

The impacts are defined as the environmental or human effect of the design and construction process, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, indoor environmental conditions.

A combination of approaches, including energy modeling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact.

The resulting allocation of points among credits is called credit weighting.

The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED Italia credits are worth a minimum of 1 point.
- All LEED Italia credits are positive, whole numbers; there are no fractions or negative values.
- All LEED Italia credits receive a single, static weight, without variations based on project location.
- LEED Italia rating system has 100 base points; Innovazione nella Progettazione and Priorità Regionale credits provide opportunities for up to 10 bonus points.

			Issue		
SS _ Sostenibilità del Sito – SS _ Sustainable Site This credit category has the aim to reduce on site damages, minimizing the building's environmental impacts on ecosystems and waterways. In fact it encourages development on previously developed site; reduces construction-related pollution and site erosion; rewards smart transportation choices and controls storm-water runoff, heat island effect and light pollution.		Tot. 26	Environmental	Economic	Community
Prereq. 1	Prevenzione dell'inquinamento da attività di cantiere Construction Activity Pollution Prevention	required	■	■	
Credit 1	Selezione del sito Site Selection	1	■	■	
Credit 2	Densità edilizia e vicinanza ai servizi Development Density and Community Connectivity	5	■	■	■
Credit 3	Recupero e riqualificazione dei siti contaminati Brownfield Redevelopment	1	■	■	
Credit 4.1	Trasporti alternativi: accesso ai trasporti pubblici Alternative Transportation: Public Transportation Access	6	■	■	
Credit 4.2	Trasporti alternativi: portabiciclette e spogliatoi Alternative Transportation: Bicycle Storage and Changing Rooms	1	■	■	
Credit 4.3	Trasporti alternativi: veicoli a bassa emissione e a carburante alternativo Alternative Transportation: Low-Emitting and Fuel-Efficient Vehicles	3	■	■	
Credit 4.4	Trasporti alternativi: capacità dell'area di progetto Alternative Transportation: Parking Capacity	2	■	■	

LEED ITALIA (Leadership in Energy and Environmental Design)

Credit 5.1	Sviluppo del sito: proteggere e ripristinare l'habitat Site Development: Protect or Restore Habitat	1	■	■	
Credit 5.2	Sviluppo del sito: massimizzazione degli spazi aperti Site Development: Maximize Open Space	1	■	■	
Credit 6.1	Acque meteoriche: controllo della quantità Stormwater: Quantity Control	1	■	■	
Credit 6.2	Acque meteoriche: controllo della qualità Stormwater: Quality Control	1	■	■	
Credit 7.1	Effetto isola di calore: superfici esterne Heat Island Effect: Non Roof	1	■	■	
Credit 7.2	Effetto isola di calore: coperture Heat Island Effect: Roof	1	■	■	
Credit 8	Riduzione dell'inquinamento luminoso Light Pollution Reduction	1	■	■	
	SECTION WEIGHT	23,64%			

			Issue		
GA _ Gestione delle Acque – WE _ Water Efficiency The goal of this credit category is to reduce water use, inside and out, through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside.		Tot. 10	Environmental	Economic	Community
Prereq. 1	Riduzione dell'uso dell'acqua - Water Use Reduction	required	■	■	
Credit 1	Gestione efficiente delle acque a scopo irriguo Water-Efficient Landscaping	2-4	■	■	■
Credit 2	Tecnologie innovative per le acque reflue Innovative Wastewater Technologies	2	■	■	
Credit 3	Riduzione dell'uso dell'acqua - Water Use Reduction	2-4	■	■	
	SECTION WEIGHT	9,09%			

			Issue		
EA _ Energia e Atmosfera – EA _ Energy and Atmosphere This category encourages different energy strategies: commissioning; efficient design and construction; efficient appliances, systems and lighting; energy use monitoring; the use of renewable and clean sources of energy, generated on-site or off-site.		Tot. 35	Environmental	Economic	Community
Prereq. 1	Commissioning di base dei sistemi energetici dell'edificio Fundamental Commissioning of Building Energy Systems	required		■	
Prereq. 2	Prestazioni energetiche minime Minimum Energy Performance	required	■	■	
Prereq. 3	Gestione di base dei fluidi refrigeranti Fundamental Refrigerant Management	required	■		
Credit 1	Ottimizzazione delle prestazioni energetiche Optimize Energy Performance	1-19	■	■	
Credit 2	Produzione in sito di energie rinnovabili On Site Renewvable Energy	1-7	■	■	
Credit 3	Commissioning avanzato dei sistemi energetici Enhanced Commissioning	2		■	

Credit 4	Gestione avanzata dei fluidi refrigeranti Enhanced Refrigerant Management	2	■		
Credit 5	Misure e collaudi - Measurement and Verification	3		■	
Credit 6	Energia verde - Green Power	2	■		
	SECTION WEIGHT	31,82%			

			Issue		
MR _ Materiali e Risorse – MR _ Material and Resources This evaluation area promotes the reduction of waste as well as reuse and recycling; encourages the selection of renewable, recycled and regional materials and the use of certified wood.		**Tot. 14**	Environmental	Economic	Community
Prereq. 1	Raccolta e stoccaggio dei materiali riciclabili Storage and Collection of Recyclables	required	■	■	■
Credit 1.1	Riutilizzo degli edifici: mantenimento di murature, solai e coperture esistenti - Building Reuse: Mantain Existing Walls, Floors and Roof	1-3	■	■	
Credit 1.2	Riutilizzo degli edifici: mantenimento del 50% di elementi non strutturali interni - Building Reuse: Mantain 50% of Non-Structural Elements	1	■	■	
Credit 2	Gestione dei rifiuti da costruzione Constraction Waste Management	1-2	■	■	
Credit 3	Riutilizzo dei materiali - Materials Reuse	1-2	■	■	
Credit 4	Contenuto di riciclato - Recycled Contents	1-2	■	■	
Credit 5	Materiali estratti, lavorati e prodotti a distanza limitata (materiali regionali) - Regional Materials	1-2	■	■	
Credit 6	Materiali rapidamente rinnovabili Rapidly Renewable Materials	1-2	■	■	
Credit 7	Legno certificato - Certified Wood	1	■	■	
	SECTION WEIGHT	12,73%			

			Issue		
QI _ Qualità Ambientale Interna – IEQ _ Indoor Environmental Quality The goal of this area is promoting strategies that can improve the indoor air quality, and the building environmental quality, as thermal and lighting control, access of natural daylight into the building and external views.		Tot. 15	Environmental	Economic	Community
Prereq. 1	Prestazioni minime per la qualità dell'aria Minimum Indoor Air Quality Performance	required			■
Prereq. 2	Controllo ambientale del fumo da tabacco Environmental Tobacco Smoke (ETS) Control	required	■	■	■
Credit 1	Monitoraggio della portata d'aria di rinnovo Outdoor Air Delivery Monitoring	1	■	■	
Credit 2	Incremento della ventilazione - Increased ventilation	1	■	■	
Credit 3.1	Piano di gestione IAQ: fase costruttiva - IAQ Plan: During Construction	1	■	■	
Credit 3.2	Piano di gestione IAQ: prima dell'occupazione IAQ Plan: Before Occupancy	1		■	■

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Credit 4.1	Materiali basso-emissivi: adesivi, primers, sigillanti, materiali cementizi e finiture per legno - Low Emitting Materials: Adhesives and Sealants	1	■	■	
Credit 4.2	Materiali basso-emissivi: pitture Low Emitting Materials: Paints and Coatings	1	■	■	
Credit 4.3	Materiali basso-emissivi: pavimentazioni Low Emitting Materials: Flooring Systems	1	■	■	
Credit 4.4	Materiali basso-emissivi: prodotti in legno composito e fibre vegetali - Low Emitting Materials: Composite Wood and Agrifiber Products	1	■	■	
Credit 5	Controllo di fonti chimiche ed inquinanti indoor Indoor Chemical and Pollutant Source Control	1	■	■	■
Credit 6.1	Controllo e gestione degli impianti: illuminazione Controllability of Systems: Lighting	1	■	■	
Credit 6.2	Controllo e gestione degli impianti: comfort termico Controllability of Systems: Thermal Comfort	1	■	■	
Credit 7.1	Comfort termico: progettazione Thermal Comfort: Design	1	■		
Credit 7.2	Comfort termico: verifica - Thermal Comfort: Verification	1	■	■	
Credit 8.1	Luce naturale e visione: luce naturale per il 75% degli spazi - Daylight and Views: Daylight	1	■	■	■
Credit 8.2	Luce naturale e visione: visuale esterna per il 90% degli spazi - Daylight and Views: Views	1	■	■	
	SECTION WEIGHT	13,64%			

			Issue		
IP _ Innovazione nella Progettazione – ID _ Innovation in Design This category provides bonus points for projects that use new and innovative technologies and strategies to improve a building's performance required by other LEED credits. Moreover, the credit category rewards projects for including a LEED AP on the team to ensure an approach to the design and construction phase.		Tot. 6	Environmental	Economic	Community
Credit 1.1	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	1	■	■	■
Credit 1.2	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	1	■	■	■
Credit 1.3	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	1	■	■	■
Credit 1.4	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	1	■	■	■
Credit 1.5	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	1	■	■	■
Credit 2	Professionista Accreditato LEED (LEED AP) LEED Accredited Professional (LEED AP)	1	■	■	
	SECTION WEIGHT	5,45%			

			Issue		
PR _ Priorità Regionale – RP _ Regional Priority GBC Italia has identified the environmental concerns that are locally most important for every region of the country, and six LEED credits that address those local priorities were selected for each region. A project that earns a regional priority credit will earn one bonus point in addition to any points awarded for that credit. Up to four extra points can be earned in this way.		Tot. 4	Environmental	Economic	Community
Credit 1.1	Priorità regionale: Credito specifico Regional Priority: Specific Credit	1	■	■	■
Credit 1.2	Priorità regionale: Credito specifico Regional Priority: Specific Credit	1	■	■	■
Credit 1.3	Priorità regionale: Credito specifico Regional Priority: Specific Credit	1	■	■	■
Credit 1.4	Priorità regionale: Credito specifico Regional Priority: Specific Credit	1	■	■	■
	SECTION WEIGHT	3,64%			

The tables show that the most important area in the LEED Italia rating system is Energia e Atmosfera area, with a weight percentage about equal to 32%. A the second place there is Sostenibilità del Sito, which has a weight percentage of 23,64%. The criteria about indoor environmental quality (QI section) represent the 13,64%, Materiali e Risorse area identifies a percentage of score equal to 12,73% and the credits about water efficiency (GA area) are 9% of the total score. The two areas Innovazione nella Progettazione and Priorità Regionale give a bonus contribute of 9%.

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	■
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

LEED Italia certification regards all project design phases, corresponding to the following steps:

1. Predesign entails gathering information, recognizing stakeholder needs, and establishing project goals.
2. Schematic design explores several design options and alternatives, with the intent to establish an agreed-upon project layout and scope of work.
3. Design development begins the process of spatial refinement and usually involves the first design of a project's energy systems.
4. Construction documents carry the design into the level of details for all spaces and systems and materials so that construction can take place.
5. Construction.
6. Substantial completion is a contractual benchmark that usually corresponds to the point at which a client could occupy a nearly completed space.
7. Final completion.
8. Certificate of occupancy is the official recognition by a local building department that a building conforms to applicable building and safety codes.

Project teams should study the principles and objectives of LEED in the site selection and design process as soon as possible. In fact, LEED Italia certification application requires the submission of an overall project narrative with the completed documentation requirements.

The project narrative has to describe the applicant's organization, building, site, and team. This narrative allows the LEED review team to know the design features. The general documentation also requires a description of the basic details pertaining to project site conditions,

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construction scope and timeline, occupant and usage data, and project team identification.

The project registration in LEED-Online is the first step towards the LEED certification. The project becomes active in the Online application when the payment of the registration fee has been processed. Once the project registration is completed, the design team begins to prepare information and perform calculations to satisfy the criteria requirements.

To earn LEED Italia certification, the applicant project must satisfy all the prerequisites and a minimum number of points to attain the established project ratings as listed below. Since submittal documentation should be continuously collected throughout every design and construction phase, it is helpful to designate in the design team a LEED AP leader, who is responsible for managing the gathering and elaboration of the LEED documentation.

The certification is divided into two principal phases and all the credits of the tool are divided into two different categories: design phase credits, based on design phase documentation, and construction phase credits, based on construction phase documentation. The following tables show the list of the Design credits and the list of the Construction credits.

Design Credits

Sostenibilità del Sito – Sustainable Site	Credit 1
	Credit 2
	Credit 3
	Credit 4.1
	Credit 4.2
	Credit 4.3
	Credit 4.4
	Credit 5.2
	Credit 6.1
	Credit 6.2
	Credit 7.2
	Credit 8
Gestione delle Acque – Water Efficiency	Prereq. 1
	Credit 1
	Credit 2
	Credit 3
Energia e Atmosfera – Energy and Atmosphere	Prereq. 2
	Prereq. 3
	Credit 1
	Credit 2
	Credit 4
Qualità Ambientale Interna – Indoor Environmental Quality	Prereq. 1
	Prereq. 2
	Credit 1
	Credit 2
	Credit 5
	Credit 6.1
	Credit 6.2
	Credit 7.1
	Credit 7.2
	Credit 8.1
	Credit 8.2

Construction Credits

Sostenibilità del Sito – Sustainable Site	Prereq. 1
	Credit 5.1
	Credit 7.1
Energia e Atmosfera – Energy and Atmosphere	Prereq.1
	Credit 3
	Credit 5
	Credit 6
Materiali e Risorse – Material and Resources	Prereq. 1
	Credit 1.1
	Credit 1.2
	Credit 2
	Credit 3
	Credit 4
	Credit 5
	Credit 6
	Credit 7
Qualità Ambientale Interna – Indoor Environmental Quality	Credit 3.1
	Credit 3.2
	Credit 4.1
	Credit 4.2
	Credit 4.3
	Credit 4.4
Innovazione nella Progettazione – Innovation in Design	Credit 1
	Credit 2

The Design phase review is optional and consists of a preliminary design phase review and a final design phase review. After this phase GBCI formally rules on the application by designating each credit as either Anticipated or Denied. Participating in a design phase review does not guarantee award of any credit and will not result in LEED certification, but this process serves to allow project teams the opportunity to assess the likelihood of credit achievement, and requires follow through to ensure the design is realized to design specification.

At the completion of construction, the project team submits all attempted credits for review. If the project team has had a design phase review and any of the design phase Anticipated credits have changed, additional documentation must be submitted to substantiate continued compliance with credit requirements. For design phase Anticipated credits that have no changed, the project team must submit a verification that the design has been executed per requirements in the construction phase.

Upon receipt of the full certification application and fee, a final review will be conducted. All applicant-verified design phase credits that were designated as anticipated and have not changed since the design phase review will be declared as awarded. All other credits will be designated as either Awarded or Denied.

LEED Italia certification is attained according to the following scale:

Base Certified: 40-49 points;

Silver Certified: 50-59 points;

Gold Certified: 60-79 points;

Platinum Certified: 80 and more points.

Buildings that achieve one of these rating levels will receive a formal letter of certification.

Cost of the certification

Registration is a flat fee paid up front at the time of registration.

The rates are: 725 Euro for GBCI Members and 970 Euro for Non-Members.

	Less than 4650 mq	Between 4650-46500 mq	More than 46500 mq
LEED 2009	Fixed Rate	Based on Square Footage	Fixed Rate
Design Review			
USGBC Members	1.620 €	0,035 €/mq	16.200 €
Non-Members	1.825 €	0,040 €/mq	18.250 €
Expedited Fee*	4050 Euro regardless of square footage		
Construction Review			
USGBC Members	405 €	0,008 €/mq	4.050 €
Non-Members	610 €	0,013 €/mq	6.100 €
Expedited Fee*	4050 Euro regardless of square footage		
Combined Design & Construction Review			
USGBC Members	1.825 €	0,040 €/mq	18.200 €
Non-Members	2.230 €	0,048 €/mq	22.200 €
Expedited Fee*	€ 9.100 regardless of square footage		
CIRs	**180 □ per credit**		

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Outputs of the certification process

At the end of the certification process the building owner receives a formal letter of certification, with indication of the rating level achieved and a crystal glass plate to affix at the entrance of the building.

Till now no buildings have been certified LEED Italia even if 75 buildings are already in the certification process. The certification body is gbci (www.gbci.org). The attached certificate and label are the ones issued by USGBC

Connection to legislation and technical standards

Regulations

LEED is internationally known and recognized as one of the most available green building certification system.

In USA, many federal state and local governments have adopted various types of LEED initiatives and incentives. Some areas have implemented or are considering incentives for LEED-certified buildings.

Many local governments have adopted LEED incentive programs. Program incentives include tax credits, tax breaks, density bonuses, reduced fees, priority or expedited permitting, free or reduced-cost technical assistance, grants and low-interest loans.

In Italy, the Autonomous Province of Trento, since 2008, has imposed the adoption of LEED rating system for assessing sustainability of buildings for the construction of new province owned buildings, but, for now, there is no one building certified, yet.

The text of the law is at the following link:

http://www.delibere.provincia.tn.it/scripts/GSearch.asp

SS _ Sostenibilità del Sito – SS _ Sustainable Site		Reference Standards
Prereq. 1	Prevenzione dell'inquinamento da attività di cantiere Construction Activity Pollution Prevention	• documento EPA Construction General Permit 2003
Credit 1	Selezione del sito Site Selection	• Direttiva del Consiglio 92/43 CEE • Direttiva del Consiglio 79/409 CEE • D.Lgs.152/2006
Credit 2	Densità edilizia e vicinanza ai servizi Development Density and Community Connectivity	N/A
Credit 3	Recupero e riqualificazione dei siti contaminati Brownfield Redevelopment	• D.Lgs.152/2006
Credit 4.1	Trasporti alternativi: accesso ai trasporti pubblici Alternative Transportation: Public Transportation Access	N/A
Credit 4.2	Trasporti alternativi: portabiciclette e spogliatoi Alternative Transportation: Bicycle Storage and Changing Rooms	N/A

Credit 4.3	Trasporti alternativi: veicoli a bassa emissione e a carburante alternativo Alternative Transportation: Low-Emitting and Fuel-Efficient Vehicles	N/A
Credit 4.4	Trasporti alternativi: capacità dell'area di progetto Alternative Transportation: Parking Capacity	N/A
Credit 5.1	Sviluppo del sito: proteggere e ripristinare l'habitat Site Development: Protect or Restore Habitat	N/A
Credit 5.2	Sviluppo del sito: massimizzazione degli spazi aperti Site Development: Maximize Open Space	N/A
Credit 6.1	Acque meteoriche: controllo della quantità Stormwater: Quantity Control	N/A
Credit 6.2	Acque meteoriche: controllo della qualità Stormwater: Quality Control	N/A
Credit 7.1	Effetto isola di calore: superfici esterne Heat Island Effect: Non Roof	• ASTM E408-71(1996)e1 • ASTM C1371-04 • ASTM E903-96 • ASTM E1918-97 • ASTM C1549-04
Credit 7.2	Effetto isola di calore: coperture Heat Island Effect: Roof	• ASTM E408-71(1996)e1 • ASTM C1371-04 • ASTM E903-96 • ASTM E1918-97 • ASTM C1549-04
Credit 8	Riduzione dell'inquinamento luminoso Light Pollution Reduction	• Standard ASHRAE/IESNA 90.1/2007 _ UNI 10819

GA _ Gestione delle Acque – WE _ Water Efficiency		**Reference Standards**
Prereq. 1	Riduzione dell'uso dell'acqua - Water Use Reduction	• UNI EN 246/2004 • UNI EN 1112/1998 • UNI EN 12056-1/2001 • DPR 236/1998 • UNI EN 13407/2006 • UNI 997/2007 • Energy Policy Act (EPAct) del 2005
Credit 1	Gestione efficiente delle acque a scopo irriguo Water-Efficient Landscaping	• UNI EN 12056-1/2001 • DPR 236/1998

Credit 2	Tecnologie innovative per le acque reflue Innovative Wastewater Technologies	• Energy Policy Act (EPAct) del 2005 • UNI EN 12056-1/2001 • DPR 236/1998 • UNI EN 13407/2006 • Uniform Plumbimg Code 2006 - section 402 • International Plumbimg Code 2006 - section 604
Credit 3	Riduzione dell'uso dell'acqua - Water Use Reduction	• UNI EN 246/2004 • UNI EN 1112/1998 • UNI EN 12056-1/2001 _ DPR 236/1998 • UNI EN 13407/2006 • UNI 997/2007 • Energy Policy Act (EPAct) del 2005

EA _ Energia e Atmosfera – EA _ Energy and Atmosphere		**Reference Standards**
Prereq. 1	Commissioning di base dei sistemi energetici dell'edificio Fundamental Commissioning of Building Energy Systems	N/A
Prereq. 2	Prestazioni energetiche minime Minimum Energy Performance	• Standard ASHRAE/IESNA 90.1/2007 • UNI/TS 11300-1/2008 • UNI/TS 11300-2/2008 • D.Lgs. 192/2005 (modificato ed integrato dal D.Lgs.311/2006 e dal DPR 59/2009) • EN ISO 6946/2007 • UNI EN ISO 13786/2007 • UNI EN ISO 13370/2001 • UNI EN ISO 14683/2007 • UNI EN ISO 15193/2008
Prereq. 3	Gestione di base dei fluidi refrigeranti Fundamental Refrigerant Management	• regolamento CE 2037/2000

Credit 1	Ottimizzazione delle prestazioni energetiche Optimize Energy Performance	• Standard ASHRAE/IESNA 90.1/2007 • UNI EN 10349/1994 • UNI/TS 11300-1/2008 • UNI/TS 11300-2/2008 • UNI EN ISO 13790/2008 • UNI EN 15251/2008 • UNI EN 15265/2008 • UNI EN 15603/2008 • D.Lgs. 192/2005 (modificato ed integrato dal D.Lgs.311/2006 e dal DPR 59/2009) • EN ISO 6946/2007 • UNI EN ISO 13786/2007 • UNI EN ISO 13370/2001 • UNI EN ISO 14683/2007 • UNI EN ISO 15193/2008
Credit 2	Produzione in sito di energie rinnovabili On Site Renewvable Energy	• UNI EN ISO 15316-4-3/2008 • UNI EN 15316-4-6/2008 • EN 15316-4-7/2008 • UNI EN 15603/2008 • D.Lgs. 387/2003 • Standard ASHRAE/IESNA 90.1/2007
Credit 3	Commissioning avanzato dei sistemi energetici Enhanced Commissioning	N/A
Credit 4	Gestione avanzata dei fluidi refrigeranti Enhanced Refrigerant Management	N/A
Credit 5	Misure e collaudi - Measurement and Verification	• IPMVP, Vol.III, EVO 30000.1/2006 • UNI EN 15378/2008
Credit 6	Energia verde - Green Power	• D.Lgs. 387/2003, art.2

MR _ Materiali e Risorse – MR _ Material and Resources		Reference Standards
Prereq. 1	Raccolta e stoccaggio dei materiali riciclabili Storage and Collection of Recyclables	N/A
Credit 1.1	Riutilizzo degli edifici: mantenimento di murature, solai e coperture esistenti - Building Reuse: Mantain Existing Walls, Floors and Roof	N/A
Credit 1.2	Riutilizzo degli edifici: mantenimento del 50% di elementi non strutturali interni - Building Reuse: Mantain 50% of Non-Structural Elements	N/A
Credit 2	Gestione dei rifiuti da costruzione Constraction Waste Management	N/A
Credit 3	Riutilizzo dei materiali - Materials Reuse	N/A

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Credit 4	Contenuto di riciclato - Recycled Contents	• International Standard ISO 14021
Credit 5	Materiali estratti, lavorati e prodotti a distanza limitata (materiali regionali) - Regional Materials	N/A
Credit 6	Materiali rapidamente rinnovabili Rapidly Renewable Materials	N/A
Credit 7	Legno certificato - Certified Wood	For now no information about this credit is available.

QI _ Qualità Ambientale Interna – IEQ _ Indoor Environmental Quality		**Reference Standards**
Prereq. 1	Prestazioni minime per la qualità dell'aria Minimum Indoor Air Quality Performance	• Standard ASHRAE 62.1/2007 • UNI EN 15251/2008 • UNI EN 13779/2008
Prereq. 2	Controllo ambientale del fumo da tabacco Environmental Tobacco Smoke (ETS) Control	• UNI EN 13829/2002 • Residential Manual for Compliance with California's 2001 Energy Efficiency Standards.
Credit 1	Monitoraggio della portata d'aria di rinnovo Outdoor Air Delivery Monitoring	• Standard ASHRAE 62.1/2007
Credit 2	Incremento della ventilazione - Increased ventilation	• Standard ASHRAE 62.1/2007 • UNI 10339/1995 • UNI EN 15251/2008 • UNI EN 13779/2008
Credit 3.1	Piano di gestione IAQ: fase costruttiva - IAQ Plan: During Construction	• IAQ Guidelines for Ocuupied Buildings Under Construction • UNI EN 779/2005
Credit 3.2	Piano di gestione IAQ: prima dell'occupazione IAQ Plan: Before Occupancy	• UNI EN ISO 16000-1/2006 • UNI EN ISO 16000-2/2006 • UNI EN ISO 16000-5/2006
Credit 4.1	Materiali basso-emissivi: adesivi, primers, sigillanti, materiali cementizi e finiture per legno - Low Emitting Materials: Adhesives and Sealants	• GEV Emicode Testing Method/2009
Credit 4.2	Materiali basso-emissivi: pitture Low Emitting Materials: Paints and Coatings	• Direttiva 2004/42/ CEE
Credit 4.3	Materiali basso-emissivi: pavimentazioni Low Emitting Materials: Flooring Systems	• Carpet and Rug Institute Green Label Plus Testing Program • SCAQMD Rule 1168, VOC limits • SCAQMD Rule 1113, Architectural Coatings • FloorScore program • California department of Health Services Standard • State of California Standard 1350

Credit 4.4	Materiali basso-emissivi: prodotti in legno composito e fibre vegetali - Low Emitting Materials: Composite Wood and Agrifiber Products	N/A
Credit 5	Controllo di fonti chimiche ed inquinanti indoor Indoor Chemical and Pollutant Source Control	UNI EN 779/2005
Credit 6.1	Controllo e gestione degli impianti: illuminazione - Controllability of Systems: Lighting	N/A
Credit 6.2	Controllo e gestione degli impianti: comfort termico Controllability of Systems: Thermal Comfort	• Standard ANSI/ASHRAE 62.1/2007 • UNI EN 15251/2008 • UNI 10339/1995 • Standard ANSI/ASHRAE 55/2004 • UNI EN ISO 7730/2006 • UNI EN 15232/2007
Credit 7.1	Comfort termico: progettazione Thermal Comfort: Design	• UNI 10339/1995 • UNI EN ISO 13731/2004 • UNI EN 15251/2008 • UNI EN ISO 7730/2006 • UNI EN ISO 7726/2002 • Standard ANSI/ASHRAE 55/2004
Credit 7.2	Comfort termico: verifica - Thermal Comfort: Verification	• UNI EN 13731/2004 • UNI EN 15251/2008 • UNI EN ISO 7730/2006 • UNI EN ISO 7726/2002
Credit 8.1	Luce naturale e visione: luce naturale per il 75% degli spazi - Daylight and Views: Daylight	• ASTM D1003-07e1 • UNI EN 410/2000 • UNI EN 15193/2008
Credit 8.2	Luce naturale e visione: visuale esterna per il 90% degli spazi - Daylight and Views: Views	N/A

IP _ Innovazione nella Progettazione – ID _ Innovation in Design		**Reference Standards**
Credit 1	Innovazione nella progettazione: titolo specifico Innovation in Design: Specific Title	There is no standard referenced for this credit. Refer to the Summary of Referenced Standards section in each credit for relevant standards.
Credit 2	Professionista Accreditato LEED (LEED AP) LEED Accredited Professional (LEED AP)	LEED Accredited Professional

PR _ Priorità Regionale – RP _ Regional Priority		**Reference Standards**
Credit 1	Priorità regionale: Credito specifico Regional Priority: Specific Credit	Refer to the standards for a particular Regional Priority credit.

LEED ITALIA (Leadership in Energy and Environmental Design)

Incentives or granting schemes

The Autonomous Province of Trento foresees economic incentives for sustainable building.

These incentives are given to New Construction or Major Renovation certified with LEED Rating System (according to the law n. 825/2007 of the Province) and an Energy consumption lower than 60 kWh/m^2 a year (energy class B).

The following tables show the quantity contributions of the Province to realization of sustainable buildings.

(Reference: www.provincia.tn.it)

Recipients	Privates	Companies	Public Institutions
admissibility	yes	yes	yes, with low limits
accumulation	see point 5.4 of criteria		
percentage contribution	35%	35%	70%
minimum technical economic threshold	80 mq	100 mq	100 mq
maximum contribution	/	semplified: de minimis evaluation: de minimis or low 800/2008	/

Calculus of the maximum expenditure allowed			
	SCNR < 500 m^2	500 mq < SCNR < 2000 m^2	SCNR > 2000 m^2
Certified	220,00*S €/ m^2	110.000 € + 110*S1 €/ m^2	275.000 € + 27,5*S2 €/ m^2
Silver	270,00*S €/ m^2	135.000 € + 137,5*S1 €/ m^2	341.250 € + 55*S2 €/ m^2
Gold	330,00 *S €/ m^2	165.000 € + 165*S1 €/ m^2	412.500 € + 82,5*S2 €/ m^2
Platinum	357,50*S €/ m^2	178.750 € + 220*S1 €/ m^2	508.750 € + 110*S2 €/ m^2

SCNR net heated area
S SCNR till 500 m^2
S1 part of SCNR between 500 and 2000 m^2
S2 part of SCNR over 2000 m^2

CASACLIMA NATURE - ITALY

Basic information

Name of the Tool	CasaClima Nature
Tool developer	ClimaHouse Agency
Tool manager	ClimaHouse Agency
Used in following countries	Italy: South-Tirol, Comune di Udine and Firenze
First issued (year)	2008
Webpage	www.agenziacasaclima.it

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end-users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	
Neighbourhood	

Time boundaries

Pre Design	
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	■
Industrial	
Healthcare	
Hotel	
Other (please specify)	

Structure of the assessment system

Building use: all

Number of hierarchic levels	1
Number of issues at top level	5
Number of issues at middle level	-
Number of criteria (low level)	-
Number of environmental criteria	-
Number of social criteria	-
Number of economic criteria	-
Percentage of quantitative criteria	-
Number of mandatory criteria	4

List of Criteria

1	Energy consumption for heating
2	CO_2 emissions
3	Primary energy (product manufacturing)
4	Acidification (product manufacturing)
5	Global warming potential (product manufacturing)

Criteria by issues (Environmental, Social, Economic)

1	Energy consumption for heating
2	CO_2 emissions
3	Primary energy (product manufacturing)
4	Acidification (product manufacturing)
5	Global warming potential (product manufacturing)

Criteria by weight

Mandatory criteria:	
Energy consumption for heating:	<50kWh/m²a
CO2 emissions:	<20kg CO_2/m²a
Exclusion reasons:	
Exclusion when greenhouse gases in the production process of the materials are used (FCKW, SF6..)	
Exclusion if wood from tropical forests is used	
Bonus/Mauls points	
Bonus points in case of use of certified products	
Malus points in case of use of PVC	

CASACLIMA NATURE - ITALY

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

- Delivery of the documentation to the agency by the planner before the start of construction. Including following documents:
  - Efficiency of the envelope (CasaClima Calculation)
  - Overall efficiency (Casa Clima Calculation)
  - Plan materials, details, stratigraphy of the elements
- The agency controls the incoming documents and requests missing data.
- The agency nominates an auditor who controls the project in detail. This control concerns following data
  - Geometrical control of the calculation
  - Control of the software calculation
  - On-site inspection during and after the construction
  - Photo documentation of the construction phase and the finished object.
  - Material certifications, product information sheet of the employed materials
- The certification is made out and the result published on the internet site.

Cost of the certification

The certification does not have any extra costs beside the usual CasaClima-certification. The prices for the usual certification depend on the location. In the province of Bolzano the certification cost for new construction is free. For existing buildings, refurbishments and refurbishments with amplification the costs amount to:

net surface area	<500m²	>500m²
(from CasaClima calculation)		
(+20% IVA)	550 €	Individual estimation of costs

Certification costs out of the province of South Tirol for all constructions:

net surface area	<300m²	<600m²	<1000m²	<2000m²	>2000m²
(from CasaClima calculation)					
(+20% IVA)	500 €	1.000 €	2.000 €	3.000 €	4.000 €
Additional costs: 2 obligatory on-site inspections, with a cost of 500Euro +20% IVA each.	1.000 €	1.000 €	1.000 €	1.000 €	1.000 €
Total costs	1.500 € (+20%IVA)	2.000 € (+20%IVA)	3.000 € (+20%IVA)	4.000 € (+20%IVA)	5.000 € (+20%IVA)

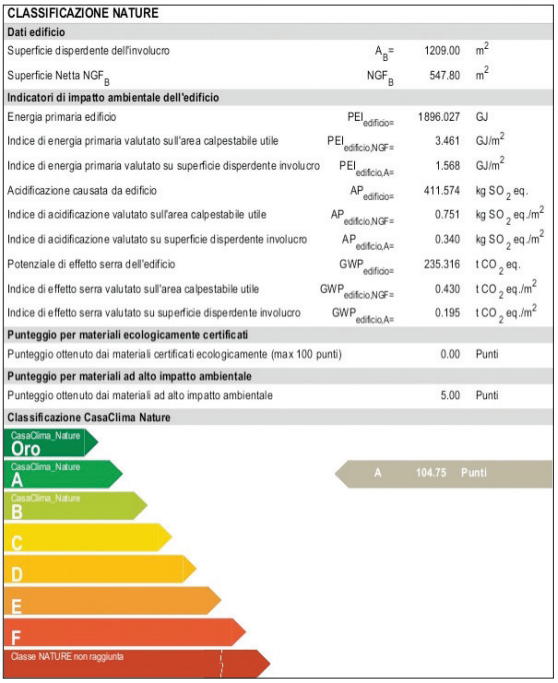
Additional costs: 2 obligatory on-site inspections, with a cost of 500Euro +20% IVA each.

Outputs of the certification process

The output of the certification process is a label stating the level of rating achieved by the building:

Label Nature Gold:	≤ 100 points
Label Nature A:	100-200 points
Label Nature B:	200-300 points
Label Nature C:	300-400 points
Label Nature D:	> 400 points

The maximal points for obtaining a Nature certification are 200 points.



CLASSIFICAZIONE NATURE			
Dati edificio			
Superficie disperdente dell'involucro	A_B=	1209.00	m^2
Superficie Netta NGF_B	NGF_B	547.80	m^2
Indicatori di impatto ambientale dell'edificio			
Energia primaria edificio	$PEI_{edificio=}$	1896.027	GJ
Indice di energia primaria valutato sull'area calpestabile utile	$PEI_{edificio,NGF=}$	3.461	GJ/m^2
Indice di energia primaria valutato su superficie disperdente involucro	$PEI_{edificio,A=}$	1.568	GJ/m^2
Acidificazione causata da edificio	$AP_{edificio=}$	411.574	kg SO_2 eq.
Indice di acidificazione valutato sull'area calpestabile utile	$AP_{edificio,NGF=}$	0.751	kg SO_2 eq./m^2
Indice di acidificazione valutato su superficie disperdente involucro	$AP_{edificio,A=}$	0.340	kg SO_2 eq./m^2
Potenziale di effetto serra dell'edificio	$GWP_{edificio=}$	235.316	t CO_2 eq.
Indice di effetto serra valutato sull'area calpestabile utile	$GWP_{edificio,NGF=}$	0.430	t CO_2 eq./m^2
Indice di effetto serra valutato su superficie disperdente involucro	$GWP_{edificio,A=}$	0.195	t CO_2 eq./m^2
Punteggio per materiali ecologicamente certificati			
Punteggio ottenuto dai materiali certificati ecologicamente (max 100 punti)		0.00	Punti
Punteggio per materiali ad alto impatto ambientale			
Punteggio ottenuto dai materiali ad alto impatto ambientale		5.00	Punti
Classificazione CasaClima Nature			

Connection to legislation and technical standards

Regulations

- The nature certification is volunteer.
- Municipalities can use the standard as a requirement in public tenders.

Standards

-

Incentives or granting schemes

At the moment there are no existing granting schemes available.

DGNB - GERMANY

Basic information

Name of the Tool	DGNB (German sustainable building certificate)
Tool developer	DGNB and the Federal Ministry of Transport, Building and Urban Affairs (BMVBS)
Tool manager	German Sustainable Building Council
Used in following countries	Germany
First issued (year)	2008
Webpage	www.dgnb.de

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	■
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	
Industrial	■
Healthcare	
Hotel	■
Other (please specify)	

Structure of the assessment system

Building use: office

Number of hierarchic levels	3
Number of issues at top level	6
Number of issues at middle level	8
Number of criteria (low level)	49
Number of environmental criteria	18
Number of social criteria	19
Number of economic criteria	2
Other criteria	10
Percentage of quantitative criteria	39%
Number of mandatory criteria	-

List of Criteria

Main Criteria Group	Criteria Group	No.	Criterion	Criterion Point		Weighting	Weighted Points		Fulfillment	Point Group		Fulfillment (Group)	Weighting (Group)	Total Fulfillment
				Achieved	Max. Possible		Achieved	Max. Possible		Achieved	Max. Possible			
Ecological Quality	impacts on global and local environment	1	Global warming potential	10	10	3	30	30	100%	173,5	195	89%	22,5%	86,4% Gold
		2	Ozone depletion potential	10	10	0,5	5	5	100%					
		3	Photocemical ozone creation potential	10	10	0,5	5	5	100%					
		4	Acidification potential	10	10	1	10	10	100%					
		5	Eutropication potential	7,1	10	1	2,1	20	21%					
		6	Risks to the regional environment	8,2	10	3	24,6	30	82%					
		8	Other impacts on the global environment	10	10	1	10	10	100%					
		9	Microclimate	10	10	0,5	5	5	100%					
	utilization of resources and waste arising	10	Non-renewable primary energy demands	10	10	3	30	30	100%					
		11	Total primary energy demands and proportion of renewable primary energy	8,4	10	2	17	20	86%					
		14	Potable water consumption and sewage generation	5	10	2	10	20	50%					
		15	Surface area usage	10	10	2	20	20	100%					
Economical Quality	life cycle costs	16	Building-related life cycle costs	9	10	3	27	30	90%	47	50	94%	22,5%	
		17	Value stability	10	10	2	20	20	100%					
Socio-cultural and Functional Quality	Performance Health, comfort ans user satisfaction	18	Thermal comfort in the winter	10	10	2	20	30	100%	251,1	280	90%	22,5%	
		19	Thermal comfort in the summer	10	10	3	30	30	100%					
		20	Indoor Hygiene	10	10	3	30	30	100%					
		21	Acoustical comfort	10	10	1	10	10	100%					
		22	Visual comfort	8,5	10	3	26	30	85%					
		23	Influences by users	6,7	10	2	13	20	67%					
		24	Roof design	9	10	1	9	10	90%					
		25	Safety and risk of failure	8	10	1	8	10	80%					
	Functionality	26	Barrier free accessibility	8	10	2	16	20	80%					
		27	Area efficieny	5	10	1	5	10	50%					
		28	Feasibilty of conversion	7,1	10	2	14	20	71%					
		29	Accessibility	10	10	2	20	20	100%					
		30	Bicycle comfort	10	10	1	10	10	100%					
		31	Assurance of the quality of the design and for urban development for competition	10	10	3	30	30	100%					
		31	Art within architecture	10	10	1	10	10	100%					
Technical Quality	Quality of the technical implementation	33	Fire protection	8	10	2	16	20	80%	74	100	74%	22,5%	
		34	Noise protection	5	10	2	10	20	50%					
		35	Energetic and moisture proofing quality of the building's shell	7,7	10	2	15	20	77%					
		40	Ease of Cleaning and Maintenance of the Structure	7,1	10	2	14	20	71%					
		42	Ease of deconstruction,recycling and dismantling	9,2	10	2	18	20	92%					
Quality of the Process	Quality of the planning	43	Quality of the projects preparation	8,3	10	3	25	30	83%	188,6	230	82%	10%	
		44	Integrated planning	10	10	3	30	30	100%					
		45	Optimization and complexity of the approach planning	8,6	10	3	26	30	86%					
		46	Evidence of sustainability considerations during bicl invitation and awarding	10	10	2	20	20	100%					
		47	Establishment of preconditions for optimized use and operations	5	10	2	10	20	50%					
		48	Construction site, construction phase	7,7	10	2	15	20	77%					
		49	Quality of executing companies, prequalifications	5	10	2	10	20	50%					
	Quality of the construction activities	50	Quality assurance of the construction activities	10	10	3	30	30	100%					
		51	Systematic commissioning	7,5	10	3	23	30	75%					

Location is presented separately, and is not included in the overall grade of the object

Quality of the Location		56	Risks of the mircolocation	7	10	2	14	20	70%	93,3%	130	72%		
		57	Circumstances at the microlocation	7,1	10	2	14,2	20	71%					
		58	Image and condition of the location and neighbourhood	1	10	2	2	20	10%					
		59	Connections to transportation	8,3	10	3	24,9	20	83%					
		60	Vicinity to usage-specific facilities	9,7	10	2	19,4	20	97%					
		61	Adjoining media, infrastructure development	9,4	10	2	18,8	20	94%					

to be filled in
autom. calculated
fixed values

Grade	
1,0	95%
1,5	80%
2,0	65%
3,0	50%
4,0	35%
5,0	20%

Degree of Compliences	
80 - 100%	Gold
65 - 79,9%	Silver
50 - 64,9%	Bronze

Figure 3: Example of an evaluation matrix for a building that was awarded with a Gold certificate.

DGNB - GERMANY

Criteria by issues (Environmental, Social, Economic)		Points	Weight	Max. points	Weigthing (group)
ECOLOGICAL QUALITY					
1	Global Warming Potential (GWP)	10	3	30	
2	Ozone Depletion Potential (ODP)	10	0,5	5	
3	Photochemical Ozone Creation Potential (POCP)	10	0,5	5	
4	Acidification Potential (AP)	10	1	10	
5	Eutrophication Potential (EP)	10	1	10	
6	Risks to the Regional Environment	10	3	30	22,5%
8	Other Impacts on the Global Environment	10	1	10	
9	Microclimate	10	0,5	5	
10	Non-renewable Primary Energy Demands (PEne)	10	5	50	
11	Total Primary Energy Demands and Proportion of Renewable Primary Energy (PEne)	10	2	20	
14	Potable Water Consumption and Sewage Generation	10	2	20	
15	Surface Areas Usage	10	2	20	
ECONOMICAL QUALITY					
16	Building-related Life Cycle Costs	10	3	30	22,5%
17	Value Stability	10	2	20	
SOCIOCULTURAL AND FUNCIONAL QUALITY					
18	Thermal Comfort in the Winter	10	2	20	
19	Thermal Comfort in the Summer	10	3	30	
20	Indoor Hygiene	10	3	30	
21	Acoustical Comfort	10	1	10	
22	Visual Comfort	10	3	30	
23	Influences by Users	10	2	20	
24	Building Oriented Exterior Area Quality	10	1	10	
25	Safty and Risks of Failure	10	1	10	22,5%
26	Barrier free Accessibility	10	2	20	
27	Area Efficiency	10	1	10	
28	Feasibility of Conversion	10	2	20	
29	Accessibility	10	2	20	
30	Bicycle Comfort	10	1	10	
31	Assurance of the Quality of the Design and for Urban Development for Competition	10	3	30	
32	Art within Architecture	10	1	10	

Criteria by weight		Points	Weight	Max. points
1	Global Warming Potential (GWP)	10	3	30
16	Building-related Life Cycle Costs	10	3	30
19	Thermal Comfort in the Summer	10	3	30
20	Indoor Hygiene	10	3	30
22	Visual Comfort	10	3	30
43	Quality of the Project's Preparation	10	3	30

44	Integral Planning	10	3	30
45	Optimization and Complexity of the Approach to Planning	10	3	30
50	Quality Assurance of the Construction Activities	10	3	30
51	Systematic Commissioning	10	3	30
59	Connection to Transportation	10	3	30
11	Total Primary Energy Demands and Proportion of Ren. Primary Energy (PEne)	10	2	20
14	Potable Water Consumption and Sewage Generation	10	2	20
15	Surface Areas Usage	10	2	20
17	Value Stability	10	2	20
18	Thermal Comfort in the Winter	10	2	20
23	Influences by Users	10	2	20
26	Barrier free Accessibility	10	2	20
28	Feasibility of Conversion	10	2	20
29	Accessibility	10	2	20
33	Fire Protection	10	2	20
34	Noise Protection	10	2	20
35	Energetic and Moisture Proofing Quality of the Building's Shell	10	2	20
40	Ease of Cleaning and Maintenance of the Structure	10	2	20
42	Ease of Deconstruction, Recycling and Dismantling	10	2	20
46	Evidence of Sust. Considerations during Bid Invitation and Awarding	10	2	20
47	Establishment of Preconditions for Optimized Use and Operation	10	2	20
48	Construction Site, Construction Phase	10	2	20
49	Quality of Executing Companies, Pre-qualifications	10	2	20
56	Risks at the Microlocation	10	2	20
57	Circumstances at the Mircolocation	10	2	20
58	Image and Condition of the Location and Neighborhood	10	2	20
60	Vicinity to Usage-specific Facilities	10	2	20
61	Adjoining Media, Infrastructure Development	10	2	20
4	Acidification Potential (AP)	10	1	10
5	Eutrophication Potential (EP)	10	1	10
8	Other Impacts on the Global Environment	10	1	10
21	Acoustical Comfort	10	1	10
24	Building Oriented Exterior Area Quality	10	1	10
25	Safety and Risks of Failure	10	1	10
27	Area Efficiency	10	1	10
30	Bicycle Comfort	10	1	10
32	Art within Architecture	10	1	10
2	Ozone Depletion Potential (ODP)	10	0,5	5
3	Photochemical Ozone Creation Potential (POCP)	10	0,5	5
9	Microclimate	10	0,5	5

DGNB - GERMANY

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	■
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

- Registration of the property at DGNB: To start the certification process for the planned building, the auditor registers the object at the DGNB website – www.dgnb.de.
- Issuance of the Pre-Certification: After registration at the website, the auditor submits the object specific specification sheet to the DGNB. It contains the data regarding all criteria of the German Sustainable Building Certification and is a binding declaration of intent by the owner to realize the planned performance goals. The DGNB checks the documents submitted by the auditor. If they comply with the requirements of the certificate, the owner receives a pre-certificate for his building. He therewith assumes responsibility for the implementation of the described measurements. At the same time he is entitled to use this pre-certificate – in gold, silver, or bronze – for the promotion of his property.
- Documentation: On this basis, the building design and construction can be started. The consulting auditor is to establish an accompanying planning and construction documentation in accordance with the specifications of the DGNB documentation guidelines.
- Inspection of Conformity: After completion of the building, the DGNB checks if the specifications of the pre-certificate have been realized. An assessor performs a conformity inspection based on the DGNB documentation guidelines, makes plausibility checks, and takes control-samples.
- Award of the Certificate: Finally, the DGNB reviews if the entire certification process was executed properly. If all requirements are fulfilled, the owner receives, depending on the degree of compliance, the gold, silver, or bronze certificate from the DGNB and BMVBS, consisting of a certificate and a plaque for his building. He may use these in his marketing activities.
- Auditors: Auditors accompany the owners during the certification process. To be officially recognized as DGNB auditors, they have to participate in a multi-week training by the DGNB or by educational institutions that have been accredited by the DGNB, such as Universities or Chambers. The modularly structured curriculum consists of an introduction to sustainable construction; it also conveys the relevant contents for the implementation of the certification system.

Costs of the certification

New construction commercial buildings, new construction educational buildings, new construction office and administration buildings, modernization office and administration buildings, new construction hotels:

Members of DGNB					
Surface (BGF m²)	< 4.000	4.000 - 20.000	20.000	20.000 - 80.000	> 80.000
Precertification	2.000 €	2.000 € +0,35€/m²	7.600 €	7.600 € +0,06€/m²	11.000 €
Certification (finished projects)	3.000 €	3.000 € +0,75€/m²	15.000 €	15.000 € +0,17€/m²	25.000 €
Not members of DGNB					
Surface (BGF m²)	< 4.000	4.000 - 20.000	20.000	20.000 - 80.000	> 80.000
Precertification	4.000 €	4.000 € +0,35€/m²	9.600 €	9.600 € +0,06€/m²	13.000 €
Certification (finished projects)	6.000 €	6.000 € +0,75€/m²	18.000 €	18.000 € +0,17€/m²	28.000 €

Masterplan	including buildings (0-15)	including buildings (> 15)
20.000 €	4.000 €/ building	3.000 €/building

New construction industrial buildings:

	Members of DGNB			Not Members of DGNB		
Surface (BGF m²)	< 4.000	4.000 - 60.000	> 60.000	< 4.000	4.000 - 60.000	> 60.000
Precertification	2.000 €	2.000 € +0,04 €/ m²	7.600€	3.000€	3 .000 € +0,04 €/ m²	6.000 €
Certification (finished projects)	3.000 €	4.000 € +0,1 €/m²	15.000 €	6.000 €	6.000 € +0,1 €/m²	12.000 €

Masterplan	including buildings (0-15)	including buildings (> 15)
10.000 €	3.000 €/ building	2.000 €/building

Outputs of the certification process

What are the outputs of the performed testing?

Label: A software-generated evaluation diagram summarizes the results of the topics and individual criteria.

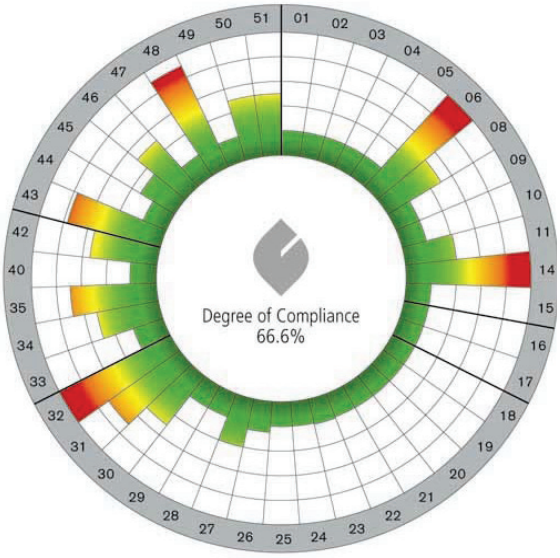
Evaluation: From a total degree of compliance of

- - 50 %, the bronze certificate is awarded
- - 65 % for silver
- - 89 % for gold

Alternatively, the total degree of compliance is indicated by a grade:

a total degree of compliance of

- - 95% corresponds to grade 1,0
- - 80 % corresponds to 1,5
- - 65 % corresponds to 2,0



Connection to legislation and technical standards

Regulations

The tool is a voluntary certification system.

Standards

- Global warming potential: German regulation for energy saving in buildings and building systems 2007 (EnEV 2007 = in German: Energieeinsparverordnung 2007).
- ecological impacts of the building's construction, including its systems engineering, an eco-accounting of the used materials and/ or building parts according to DIN EN ISO 14040 and 14044
- Building-related Life Cycle Costs: BMVBS
- Thermal comfort in summer: DIN 4108-2
- Acoustic comfort: DIN 18041w (T/TDIN 18041)
- Quality of Design and Urban Development in Competition: GRW95, RPW2008
- Noise protection: DIN 4109
- Quality of the buildings shell: DIN 4108, and DIN EN 12207.
- Quality of the projects preparation: HOAI §15, integral planning process (HOAI § 15, WPH 2 to 5 and WPH 8).
- Microclimate: CEDIM Risk Explorer

Incentives or granting schemes

At the moment there are no incentives and granting schemes offered for the certification.

DÉMARCHE BDM - FRANCE

Basic information

Name of the Tool	DÉMARCHE BDM, France, Région Provence-Alpes-Côte d'Azur
Tool developer	Association Bâtiments Durables Méditerranéens
Tool manager	Association Bâtiments Durables Méditerranéens
Used in following countries	France
First issued (year)	2009
Webpage	www.polebdm.eu

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	■
Design	■
Construction	■
Operation	■
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	■
Industrial	
Healthcare	
Hotel	■
Other (please specify)	

Structure of the assessment system

Building use: residential

Number of hierarchic levels	3
Number of issues at top level	5
Number of issues at middle level	14
Number of criteria (low level)	28
Number of environmental criteria	23
Number of social criteria	5
Number of economic criteria	0
Percentage of quantitative criteria	7%
Number of mandatory criteria	17*

*Mandatory actions requested by the criteria

List of Criteria

LE PROJET DANS SON TERRITOIRE

Le site de la réhabilitation

- Favoriser la densité urbaine
- Optimiser l'emplacement
- Permettre l'utilisation des transports doux et/ou collectifs
- Avoir des commerces et des services à proximité

S'adapter au site

- Ne pas bouleverser le site et son environnement immédiat
- Gérer les eaux pluviales

Concevoir la réhabilitation

- Respecter les règles de l'architecture bioclimatique en milieu méditerranéen
- Prévoir les espaces en fonction des usages et besoins

Maintenir et créer des espaces extérieurs méditerranéens

- Créer des espaces de transition entre intérieur et extérieur
- Choisir des végétaux adaptés au climat méditerranéen
- Favoriser le maintien et le développement de la biodiversité:

LES MATÉRIAUX ET LE CHANTIER

Choisir les matériaux de construction

- Utiliser des matériaux sains et durables
- Choisir les matériaux en fonction des savoir-faire régionaux
- Utiliser des matériaux existants ou recyclés

Limiter l'impact du chantier

- Minimiser et gérer les déchets de chantier
- Réduire les nuisances de chantier

ÉCONOMIES ET SOBRIÉTÉ D'USAGE

Énergie

- Efficacité énergétique
- Réduire la consommation électrique
- Utiliser des énergies renouvelables

Eau

- Réduire la consommation d'eau
- Réutiliser l'eau de pluie et l'eau usée

Déchets ménagers / déchets d'activité

- Prévoir les emplacements nécessaires au tri sélectif, compostage

Maîtriser les consommations

- Suivre les consommations

CONFORT ET SANTÉ A L'INTÉRIEUR

Confort thermique méditerranéen

- Stocker la chaleur en hiver et la fraîcheur en été, par l'inertie du bâtiment
- Maîtriser les apports solaires

Qualité acoustique et phonique

- Protéger les pièces à vivre des sources de bruit extérieur

Confort visuel

- Favoriser la lumière naturelle et les vues

Qualité de l'air

- Renouveler l'air ambiant sans perdre en confort thermique

RÉUSSIR SON PROJET DE BATIMENT DURABLE MEDITERRANÉEN

Se poser les bonnes questions en amont

- Élaborer un programme
- Dessiner le projet de réhabilitation
- Finaliser la Démarche BDM

Criteria by issues
(Environmental, Social, Economic)

Environmental

- Favoriser la densité urbaine
- Optimiser l'emplacement
- Permettre l'utilisation des transports doux et/ou collectifs
- Avoir des commerces et des services à proximité
- Ne pas bouleverser le site et son environnement immédiat
- Gérer les eaux pluviales
- Respecter les règles de l'architecture bioclimatique en milieu méditerranéen
- Prévoir les espaces en fonction des usages et besoins
- Créer des espaces de transition entre intérieur et extérieur
- Choisir des végétaux adaptés au climat méditerranéen
- Favoriser le maintien et le développement de la biodiversité:
- Utiliser des matériaux sains et durables
- Choisir les matériaux en fonction des savoir-faire régionaux
- Utiliser des matériaux existants ou recyclés
- Minimiser et gérer les déchets de chantier
- Réduire les nuisances de chantier
- Efficacité énergétique
- Réduire la consommation électrique
- Utiliser des énergies renouvelables
- Réduire la consommation d'eau
- Réutiliser l'eau de pluie et l'eau usée
- Prévoir les emplacements nécessaires au tri sélectif, compostage
- Suivre les consommations

Social

- Stocker la chaleur en hiver et la fraîcheur en été, par l'inertie du bâtiment
- Maîtriser les apports solaires
- Protéger les pièces à vivre des sources de bruit extérieur
- Favoriser la lumière naturelle et les vues
- Renouveler l'air ambiant sans perdre en confort thermique

DÉMARCHE BDM - FRANCE

Criteria by weight

Stocker la chaleur en hiver et la fraîcheur en été, par l'inertie du bâtiment	12
Utiliser des matériaux sains et durables	6
Choisir les matériaux en fonction des savoir-faire régionaux	5
Utiliser des matériaux existants ou recyclés	5
Utiliser des énergies renouvelables	5
Permettre l'utilisation des transports doux et/ou collectifs	4
Avoir des commerces et des services à proximité	4
Minimiser et gérer les déchets de chantier	4
Réduire la consommation d'eau:	4
Suivre les consommations	4
Maîtriser les apports solaires	4
Gérer les eaux pluviales	3
Efficacité énergétique	3
Réduire la consommation électrique	3
Réutiliser l'eau de pluie et l'eau usée	3
Favoriser la densité urbaine	2
Optimiser l'emplacement	2
Prévoir les espaces en fonction des usages et besoins	2
Favoriser le maintien et le développement de la biodiversité	2
Prévoir les emplacements nécessaires au tri sélectif, compostage	2
Protéger les pièces à vivre des sources de bruit extérieur	2
Ne pas bouleverser le site et son environnement immédiat	1
Favoriser la lumière naturelle et les vues	1
Renouveler l'air ambiant sans perdre en confort thermique	1

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

Three stages procedures:

- CONCEPTION : based on self-evaluation online, registration and documentation. Assessment studied by BDM's staff and confirmed by a commission of experts.
- BUILDING : one or several in-site inspections by BDM's staff. End of building documentation. Assessment confirmed by a commission of experts.
- IN USE : two years measurements (energy, water) and appraisal by users. Assessment finally confirmed by commission of experts.

Cost of the certification

Homes : 250 Euro

Collective homes or Residential buildings : 250 Euro + 1,5 euro/m^2 above first 100 m^2

Outputs of the certification process

The output of the certification process is a label stating the level of performance achieved:

BDM Bronze : 20 to 49 points

BDM Silver : 50 to 79 points

BDM Gold : 80 and +

Connection to legislation and technical standards

Regulations

National official regulation of building energy performance.

Standards

Label BBC Effinergie

Incentives or granting schemes

Regional (PACA Region) grants.

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Basic information

Name of the Tool	HQE
Tool developer	HQE
Tool manager	HQE
Used in following countries	FRANCE
First issued (year)	1996
Webpage	http://assohqe.org

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	■
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	■
Industrial	
Healthcare	■
Hotel	■
Other (please specify)	

Structure of the assessment system

Building use: office

Number of hierarchic levels	3
Number of issues at top level	14
Number of issues at middle level	42
Number of criteria (low level)	159
Number of environmental criteria	62
Number of social criteria	97
Number of economic criteria	-
Percentage of quantitative criteria	36%
Number of mandatory criteria	100%

*Mandatory actions requested by the criteria

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List of Criteria and Criteria by issues (Environmental, Social, Economic)

Cible 1 - Relation du bâtiment avec son environnement immédiat		Environmental	Social
1.1.	Aménagement de la parcelle pour un développement urbain durable		
1.1.1.	Assurer la cohérence entre l'aménagement de la parcelle et la politique de la collectivité	■	
1.1.2.	Optimiser les accès et gérer les flux		■
1.1.3.	Maîtriser les modes de déplacement et favoriser ceux qui sont les moins polluants pour une fonctionnalité optimale	■	
1.1.4.	Préserver / Améliorer la qualité écologique et paysagère du site	■	
1.1.5.	Préserver / Améliorer la biodiversité	■	
1.1.6.	Intégration paysagère de la gestion des eaux pluviales et/ou usées	■	
1.2.	Qualité d'ambiance des espaces extérieurs pour les usagers		
1.2.1.	Créer une ambiance climatique extérieure satisfaisante		■
1.2.2.	Créer une ambiance acoustique extérieure satisfaisante		■
1.2.3.	Créer une ambiance visuelle satisfaisante		■
1.2.4.	Eclairage extérieur		■
1.2.5.	Assurer des espaces extérieurs sains		■
1.2.6.	Accessibilité, bien-être et convivialité		■
1.2.7.	Pollution visuelle		■
1.3.	Impacts du bâtiment sur le voisinage		
1.3.1.	Assurer le droit au soleil et à la lumière aux riverains		■
1.3.2.	Assurer le droit aux vues aux riverains		■
1.3.3.	Assurer le droit à la santé aux riverains		■
1.3.4.	Assurer le droit au calme aux riverains		■
1.3.5.	Limiter la pollution visuelle nocturne		■

Cible 2 - Choix intégré des produits, systèmes et procédés de construction		Environmental	Social
2.1.	Choix constructifs pour la durabilité et l'adaptabilité de l'ouvrage		
2.1.1.	Réfléchir sur l'adaptabilité de l'ouvrage dans le temps en fonction de sa durée de vie souhaitée et de ses usages	■	
2.1.2.	Adapter les choix constructifs aux durées de vie de l'ouvrage	■	
2.1.3.	Réfléchir sur la démontabilité / séparabilité des produits, systèmes et procédés de construction	■	
2.1.4.	Choisir des produits, systèmes ou procédés dont les caractéristiques sont vérifiées et compatibles avec l'usage	■	
2.2.	Choix constructifs pour la facilité d'entretien de l'ouvrage		
2.2.1.	Assurer la facilité d'accès pour l'entretien du bâti	■	
2.2.2.	Choisir des produits de construction faciles à entretenir et limitant les impacts environnementaux de l'entretien	■	

2.3.	Choix des produits de construction afin de limiter les impacts environnementaux de l'ouvrage		
2.3.1.	Connaître la contribution des produits de construction aux impacts environnementaux de l'ouvrage	■	
2.3.2.	Choisir les produits de construction pour limiter leur contribution aux impacts environnementaux de l'ouvrage	■	
2.3.3.	Utiliser des matériaux et des produits issus de filières les plus courtes et moins polluantes	■	
2.3.4.	Mettre en œuvre un volume minimum de bois	■	
2.4.	Choix des produits de construction afin de limiter les impacts sanitaires de l'ouvrage		
2.4.1.	Connaître l'impact sanitaire des produits de construction vis-à-vis de la qualité d'air intérieur (*)		■
2.4.2.	Choisir les produits de construction pour limiter les impacts sanitaires de l'ouvrage		■
2.4.3.	Connaître les émissions de fibres et de particules des produits en contact avec l'air		■
2.4.4.	Limiter la pollution par les éventuels traitements des bois		■

Cible 3 - Chantier à faible impact environnemental		Environmental	Social
3.1.	Optimisation de la gestion des déchets de chantier		
3.1.1.	Optimiser la collecte, le tri et le regroupement des déchets de chantier	■	
3.1.2.	Valoriser au mieux les déchets de chantier en adéquation avec les filières locales existantes et s'assurer de la destination des déchets	■	
3.1.3.	Réduire les déchets de chantier à la source	■	
3.2.	Limitation des nuisances pendant le chantier		
3.2.1.	Limiter les nuisances acoustiques		■
3.2.2.	Limiter les nuisances visuelles		■
3.2.3.	Limiter les nuisances dues au trafic		■
3.2.4.	Limiter les nuisances dues à la poussière, à la boue et aux laitances de béton		■
3.3.	Limitation des pollutions et des consommations de ressources pendant le chantier		
3.3.1.	Limiter la pollution des eaux et du sol	■	
3.3.2.	Limiter la pollution de l'air	■	
3.3.3.	Limiter les consommations de ressources	■	

Cible 4 - Gestion de l'énergie			
4.1.	Réduction de la demande énergétique par la conception architecturale		
4.1.1.	Améliorer l'aptitude de l'enveloppe à limiter les déperditions	■	
4.1.2.	Améliorer l'aptitude du bâtiment à réduire ses besoins énergétiques, en été comme en hiver	■	
4.1.3.	Améliorer la perméabilité à l'air de l'enveloppe	■	
4.2.	Réduction de la consommation d'énergie primaire		
4.2.1.	Réduire la consommation d'énergie primaire due au chauffage, au refroidissement, à l'éclairage, à l'ECS, à la ventilation, et aux auxiliaires de fonctionnement (selon le type de bâtiment)	■	

4.2.2.	Utiliser des produits ou systèmes innovants ou non pris en compte par la règlementation thermique, et permettant un gain énergétique important	■	
4.2.3.	Limiter l'éclairage artificiel non réglementaire	■	
4.2.4.	Limiter les consommations des équipements électromécaniques	■	
4.2.5.	Recours à des énergies renouvelables locales		
4.3.	Réduction des émissions de polluants dans l'atmosphère		
4.3.1.	Quantités d'équivalent CO_2 générées par l'utilisation de l'énergie		
4.3.2.	Quantités d'équivalent SO_2 générées par l'utilisation de l'énergie	■	
4.3.3.	Quantités de déchets radioactifs générées par l'utilisation de l'électricité du réseau	■	
4.3.4.	Impact sur la couche d'ozone	■	

Cible 5 - Gestion de l'eau		Environmental	Social
5.1.	Réduction de la consommation d'eau potable		
5.1.1.	Garantir une économie d'eau potable dans les sanitaires	■	
5.1.2.	Garantir une économie d'eau potable pour l'arrosage des espaces verts et le nettoyage des locaux	■	
5.1.3.	Limiter les consommations d'eau sur les systèmes énergétiques ou les systèmes caractéristiques des usages de l'ouvrage	■	
5.2.	Optimisation de la gestion des eaux pluviales		
5.2.1.	Gestion de l'infiltration : Coefficient d'imperméabilisation	■	
5.2.2.	Gestion de la rétention : Débit de fuite après réalisation	■	
5.2.3.	Traitement des eaux de ruissellement	■	
5.3.	Gestion des eaux usées		
5.3.1.	Identifier et pré-traiter les eaux usées	■	
5.3.2.	Traiter sur site les rejets d'eaux usées	■	
5.3.3.	Recycler les eaux usées	■	

Cible 6 - Gestion des déchets d'activités		Environmental	Social
6.1.	Optimisation de la valorisation des déchets d'activité		
6.1.1.	Identifier et classifier la production de déchets d'activité afin de les valoriser au mieux	■	
6.1.2.	Choisir les filières d'enlèvement des déchets en privilégiant leur valorisation	■	
6.1.3.	Favoriser le tri des déchets à la source	■	
6.1.4.	Favoriser la valorisation sur site des déchets d'activité	■	
6.2.	Qualité du système de gestion des déchets d'activité		
6.2.1.	Faciliter la gestion des déchets par un dimensionnement adéquat des locaux/zones déchets	■	
6.2.2.	Garantir l'hygiène et la sécurisation des locaux/zones déchets	■	
6.2.3.	Optimiser les circuits de déchets d'activité	■	
6.2.4.	Garantir la pérennité du système de gestion des déchets d'activité	■	

Cible 7 - Maintenance - Pérennité des performances environnementales		Environmental	Social
7.1.	Maintien des performances des systèmes de chauffage et de rafraîchissement		
7.1.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation		
7.1.2.	Assurer une simplicité de conception des équipements et systèmes pour faciliter la maintenance et limiter la gêne occasionnée aux occupants durant les interventions de maintenance		
7.1.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de chauffage / rafraichissement pendant l'exploitation de l'ouvrage		
7.2.	Maintien des performances des systèmes de ventilation		
7.2.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation		
7.2.2.	Assurer une simplicité de conception des équipements et systèmes pour faciliter la maintenance et limiter la gêne occasionnée aux occupants durant les interventions de maintenance		
7.2.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de ventilation pendant l'exploitation de l'ouvrage		
7.3.	Maintien des performances des systèmes d'éclairage		
7.3.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation		
7.3.2.	Assurer une simplicité de conception des équipements et systèmes pour faciliter la maintenance et limiter la gêne occasionnée aux occupants durant les interventions de maintenance		
7.3.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes d'éclairage pendant l'exploitation de l'ouvrage		
7.4.	Maintien des performances des systèmes de gestion de l'eau		
7.4.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation		
7.4.2.	Assurer une simplicité de conception des équipements et systèmes pour faciliter la maintenance et limiter la gêne occasionnée aux occupants durant les interventions de maintenance		
7.4.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de gestion de l'eau pendant l'exploitation de l'ouvrage		

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Cible 8 - Confort hygrométrique		Environmental	Social
8.1.	Dispositions architecturales visant à optimiser le confort hygrothermique en hiver et en été		
8.1.1.	Prendre en compte les caractéristiques du site (été principalement)		
8.1.2.	Améliorer l'aptitude du bâtiment à favoriser de bonnes conditions de confort hygrothermique en hiver et en été		
8.1.3.	Regrouper les locaux à besoin hygrothermique homogène (été ou hiver)		
8.1.4.	Maîtriser l'inconfort de mi-saison		
8.2.	Création de conditions de confort hygrothermique en hiver		
8.2.1.	Définir / obtenir un niveau adéquat de température (résultante) dans les espaces		
8.2.2.	Assurer la stabilité des températures en période d'occupation (pour les espaces à usage intermittent)		
8.2.3.	Assurer une vitesse d'air et ne nuisant pas au confort		
8.2.4.	Maîtrise de l'ambiance thermique par les usagers en période froide		
8.3.	Création de conditions de confort hygrothermique en été dans les locaux n'ayant pas recours à un système de refroidissement		
8.3.1	Assurer un niveau minimal de confort thermique et protéger du soleil les baies vitrées		
8.3.2.	Assurer une ventilation suffisante lorsque les protections solaires sont en place (stores baissés) et maîtriser le débit d'air		
8.4.	Création de conditions de confort hygrothermique en été dans les locaux ayant recours à un système de refroidissement		
8.4.1.	Définir un niveau adéquat de température dans les espaces		
8.4.2.	Assurer une vitesse d'air ne nuisant pas au confort		
8.4.3.	Maîtriser les apports solaires et en particulier l'inconfort localisé dû au rayonnement chaud		
8.4.4.	Maîtrise de l'ambiance thermique par les usagers en période chaude		
8.4.5.	Maîtriser l'hygrométrie dans les espaces sensibles en période chaude		

Cible 9 - Confort acoustique		Environmental	Social
9.1.	Optimisation des dispositions architecturales pour protéger les usagers des nuisances acoustiques		
9.1.1.	Optimiser la position des espaces sensibles et très sensibles par rapport aux nuisances intérieures		
9.1.2.	Optimiser la position des espaces sensibles et très sensibles par rapport aux nuisances extérieures		
9.1.3.	Optimiser la forme et le volume des espaces dans lesquels l'acoustique interne est un enjeu		
9.2.	Création d'une qualité d'ambiance acoustique adaptée aux différents locaux		
9.2.1.	Isolement des espaces vis-à-vis de l'extérieur		
9.2.2.	Niveau de bruits de choc transmis dans les espaces		
9.2.3.	Niveau de bruit des équipements dans les espaces		

9.2.4.	Acoustique interne des espaces		
9.2.5.	Isolement au bruit aérien des espaces (réception) vis-à-vis des autres espaces (émission)		
9.2.6.	Sonorité à la marche des bureaux individuels		

Cible 10 - Confort visuel		Environmental	Social
10.1.	Optimisation de l'éclairage naturel		
10.1.1.	Disposer d'accès à la lumière du jour dans les espaces sensibles		
10.1.2.	Disposer d'accès à des vues sur l'extérieur dans les espaces sensibles		
10.1.3.	Disposer d'un éclairement naturel minimal		
10.1.4.	Qualité du traitement de la lumière naturelle		
10.2.	Eclairage artificiel confortable		
10.2.2.	Assurer une bonne uniformité de l'éclairage		
10.2.3.	Eviter l'éblouissement dû à l'éclairage artificiel et rechercher un équilibre des luminances de l'environnement lumineux intérieur		
10.2.4.	Assurer une qualité agréable de la lumière émise		
10.2.5.	Maîtrise de l'ambiance visuelle par les usagers		

Cible 11 - Confort olfactif		Environmental	Social
11.1.	Garantie d'une ventilation efficace		
11.1.1.	Assurer des débits d'air adaptés à l'activité des locaux		
11.1.2.	Eviter les déperditions d'air		
11.1.3.	Assurer la maîtrise de la qualité d'air amené par conduit		
11.1.4.	Assurer une atmosphère saine dans les espaces		
11.1.5.	Assurer un balayage optimal de l'air intérieur dans les espaces		
11.2.	Maîtrise des sources d'odeurs désagréables et création d'une ambiance olfactive agréable		
11.2.1.	Identifier et réduire les effets des sources d'odeurs		
11.2.2.	Traiter les rejets malodorants pour éviter la diffusion des odeurs		
11.2.3.	Assurer une ambiance olfactive agréable dans les espaces		

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Cible 12 - Qualité sanitaire des espaces		Environmental	Social
12.1.	Maîtrise de l'exposition électromagnétique		
12.1.1.	Identifier les sources d'émissions électromagnétiques		
12.1.2.	Limiter l'impact des sources d'émission électromagnétique		
12.2.	Création des conditions d'hygiène spécifiques		
12.2.1.	Créer les conditions d'hygiène spécifique		
12.2.2.	Optimiser les conditions sanitaires des locaux d'entretien		
12.2.3.	Favoriser une conception améliorant l'ergonomie afin de faciliter le nettoyage		
12.2.4.	Choisir des matériaux limitant la croissance fongique et bactérienne		

Cible 13 - Qualité sanitaire de l'air		Environmental	Social
13.1.	Garantie d'une ventilation efficace		
13.1.1.	Assurer des débits d'air adaptés à l'activité des locaux		
13.1.2.	Eviter les déperditions d'air		
13.1.3.	Assurer la maîtrise de la qualité d'air amené par conduit		
13.1.4.	Assurer une atmosphère saine dans les espaces		
13.1.5.	Assurer un balayage optimal de l'air intérieur dans les espaces		
13.2.	Maîtrise des sources de pollution internes		
13.2.1.	Identifier et réduire les effets des sources de pollution internes		
13.2.2.	Connaître les émissions de fibres et de particules des produits en contact avec l'air		
13.2.3.	Limiter la pollution par les éventuels traitements des bois		
13.2.4.	Prévenir le développement des bactéries dans l'air		
13.2.5.	Connaître l'impact sanitaire des produits de construction vis-à-vis de la qualité d'air intérieur		
13.2.6.	Choisir les produits de construction pour limiter les impacts sanitaires de l'ouvrage		
13.3.	Maîtrise des sources de pollution externes		
13.3.1.	Identifier les sources de pollution externes		
13.3.2.	Limiter l'entrée des polluants externes identifiés		
13.3.3.	Assurer la maîtrise des pollutions		

Cible 14 - Qualité sanitaire de l'eau		Environmental	Social
14.1.	Qualité et durabilité des matériaux employés dans le réseau intérieur		
14.1.1.	Choisir des matériaux conforme à la réglementation		
14.1.2.	Choisir des matériaux compatibles avec la nature de l'eau distribuée		
14.1.3.	Respecter les règles de mise en œuvre des canalisations		

14.2.	Organisation et protection du réseau intérieur		
14.2.1.	Structurer et signaliser le réseau intérieur en fonction des usages de l'eau		
14.2.2.	Séparer le réseau d'eau potable et les éventuels réseaux d'eau non potable (en cas de recours à une eau non potable)		
14.2.3.	Protéger le réseau intérieur		
14.3.	Maîtrise de la température dans le réseau intérieur		
14.3.1.	Maintenir les réseaux d'ECS et d'EFS à une température optimale		
14.3.2.	Concevoir le(s) réseau(x) d'ECS afin de limiter les risques de légionellose		
14.3.3.	Contrôler le maintien en température des réseaux		
14.3.4.	Maîtriser les risques de brûlure		
14.4.	Maîtrise des traitements		
14.4.1.	Ne pas traiter l'eau froide destinée à la consommation humaine		
14.4.2.	Optimiser les traitements d'entretien du réseau intérieur		
14.4.3.	Maîtriser les performances des traitements		
14.5.	Maîtrise du risque sanitaire lié à la récupération et à la réutilisation sur site d'une eau non potable (en cas de réutilisation sur site d'une eau non potable)		
14.5.1.	Traiter les eaux non potables réutilisées		
14.5.2.	Optimiser la conception des cuves de stockage de l'eau non potable réutili		

Criteria by weight

The criteria have been ordered on the base of the potential TP points achievable.

TP 25	
4.2.1.	Réduire la consommation d'énergie primaire due au chauffage, au refroidissement, à l'éclairage, à l'ECS, à la ventilation, et aux auxiliaires de fonctionnement (selon le type de bâtiment)
TP 15	
2.4.1.	Connaître l'impact sanitaire des produits de construction vis-à-vis de la qualité d'air intérieur
13.2.5.	Connaître l'impact sanitaire des produits de construction vis-à-vis de la qualité d'air intérieur
TP 13	
3.1.2.	Valoriser au mieux les déchets de chantier en adéquation avec les filières locales existantes et s'assurer de la destination des déchet
TP12	
5.1.1.	Garantir une économie d'eau potable dans les sanitaires

TP11	
2.1.1.	Réfléchir sur l'adaptabilité de l'ouvrage dans le temps en fonction de sa durée de vie souhaitée et de ses usages
TP10	
5.2.2.	Gestion de la rétention : Débit de fuite après réalisation
10.1.3.	Disposer d'un éclairement naturel minimal
TP9	
2.1.3.	Réfléchir sur la démontabilité / séparabilité des produits, systèmes et procédés de construction
7.1.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de chauffage / rafraichissement pendant l'exploitation de l'ouvrage
TP8	
1.1.3.	Maîtriser les modes de déplacement et favoriser ceux qui sont les moins polluants pour une fonctionnalité optimale

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7.2.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de ventilation pendant l'exploitation de l'ouvrage
10.2.4.	Assurer une qualité agréable de la lumière émise
TP7	
1.1.4.	Préserver / Améliorer la qualité écologique et paysagère du site
7.3.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes d'éclairage pendant l'exploitation de l'ouvrage
TP6	
2.3.1.	Connaître la contribution des produits de construction aux impacts environnementaux de l'ouvrage
3.2.1.	Limiter les nuisances acoustiques
4.2.5.	Recours à des énergies renouvelables locae
7.4.3.	Mettre à disposition les moyens nécessaires pour le suivi et le contrôle des performances des systèmes de gestion de l'eau pendant l'exploitation de l'ouvrage
1.1.6.	Intégration paysagère de la gestion des eaux pluviales et/ou usées
TP5	
1.2.1.	Créer une ambiance climatique extérieure satisfaisante
5.1.2.	Garantir une économie d'eau potable pour l'arrosage des espaces verts et le nettoyage des locaux
5.2.1.	Gestion de l'infiltration : Coefficient d'imperméabilisation
5.2.3.	Traitement des eaux de ruissellement
5.3.1.	Identifier et pré-traiter les eaux usées
5.3.2.	Traiter sur site les rejets d'eaux usées
8.3.1	Assurer un niveau minimal de confort thermique et protéger du soleil les baies vitrées
10.1.1.	Disposer d'accès à la lumière du jour dans les espaces sensibles
12.2.4.	Choisir des matériaux limitant la croissance fongique et bactérienne
14.3.2.	Concevoir le(s) réseau(x) d'ECS afin de limiter les risques de légionellose
TP4	
1.1.2.	Optimiser les accès et gérer les flux
1.1.5.	Préserver / Améliorer la biodiversité
3.1.3.	Réduire les déchets de chantier à la source
3.3.3.	Limiter les consommations de ressources
6.1.2.	Choisir les filières d'enlèvement des déchets en privilégiant leur valorisation
8.2.3.	Assurer une vitesse d'air et ne nuisant pas au confort
9.2.4.	Acoustique interne des espaces
11.1.1.	Assurer des débits d'air adaptés à l'activité des locaux
13.1.1.	Assurer des débits d'air adaptés à l'activité des locaux
TP3	
1.1.1.	Assurer la cohérence entre l'aménagement de la parcelle et la politique de la collectivité
1.3.4.	Assurer le droit au calme aux riverains
2.2.1.	Assurer la facilité d'accès pour l'entretien du bâti
2.2.2.	Choisir des produits de construction faciles à entretenir et limitant les impacts environnementaux de l'entretien
2.3.2.	Choisir les produits de construction pour limiter leur contribution aux impacts environnementaux de l'ouvrage
2.3.3.	Utiliser des matériaux et des produits issus de filières les plus courtes et moins polluantes
2.3.4.	Mettre en œuvre un volume minimum de bois
2.4.4.	Limiter la pollution par les éventuels traitements des bois
3.3.1.	Limiter la pollution des eaux et du sol
5.1.3.	Limiter les consommations d'eau sur les systèmes énergétiques ou les systèmes caractéristiques des usages de l'ouvrage
6.1.4.	Favoriser la valorisation sur site des déchets d'activité
6.2.4.	Garantir la pérennité du système de gestion des déchets d'activité
7.1.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation
7.2.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation

8.1.4.	Maîtriser l'inconfort de mi-saison
8.2.2.	Assurer la stabilité des températures en période d'occupation (pour les espaces à usage intermittent)
8.3.2.	Assurer une ventilation suffisante lorsque les protections solaires sont en place (stores baissés) et maîtriser le débit d'air
8.4.3.	Maîtriser les apports solaires et en particulier l'inconfort localisé dû au rayonnement chau
8.4.5.	Maîtriser l'hygrométrie dans les espaces sensibles en période chaude
9.2.1.	Isolement des espaces vis-à-vis de l'extérieur
9.2.2.	Niveau de bruits de choc transmis dans les espaces
9.2.3.	Niveau de bruit des équipements dans les espaces
9.2.5.	Isolement au bruit aérien des espaces (réception) vis-à-vis des autres espaces (émission)
10.1.2.	Disposer d'accès à des vues sur l'extérieur dans les espaces sensibles
11.1.5.	Assurer un balayage optimal de l'air intérieur dans les espaces
11.2.2.	Traiter les rejets malodorants pour éviter la diffusion des odeurs
12.1.2.	Limiter l'impact des sources d'émission électromagnétique
13.1.5.	Assurer un balayage optimal de l'air intérieur dans les espaces
13.2.3.	Limiter la pollution par les éventuels traitements des bois
13.2.4.	Prévenir le développement des bactéries dans l'air
14.3.3.	Contrôler le maintien en température des réseaux
14.4.2.	Optimiser les traitements d'entretien du réseau intérieur
TP2	
1.2.3.	Créer une ambiance visuelle satisfaisante
1.3.1.	Assurer le droit au soleil et à la lumière aux riverains
2.4.2.	Choisir les produits de construction pour limiter les impacts sanitaires de l'ouvrage
3.1.1.	Optimiser la collecte, le tri et le regroupement des déchets de chantier
3.2.4.	Limiter les nuisances dues à la poussière, à la boue et aux laitances de béton
4.1.3.	Améliorer la perméabilité à l'air de l'enveloppe
4.2.2.	Utiliser des produits ou systèmes innovants ou non pris en compte par la règlementation thermique, et permettant un gain énergétique important
4.3.1.	Quantités d'équivalent CO2 générées par l'utilisation de l'énergie
4.3.4.	Impact sur la couche d'ozone
7.3.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation
7.4.1.	Concevoir l'ouvrage de façon à faciliter les interventions d'entretien / maintenance pendant son exploitation
8.4.2.	Assurer une vitesse d'air ne nuisant pas au confort
10.1.4.	Qualité du traitement de la lumière naturelle
10.2.2.	Assurer une bonne uniformité de l'éclairage
11.1.2.	Eviter les déperditions d'air
13.1.2.	Eviter les déperditions d'air
13.2.6.	Choisir les produits de construction pour limiter les impacts sanitaires de l'ouvrage
13.3.3.	Assurer la maîtrise des pollutions
14.5.1.	Traiter les eaux non potables réutilisées
TP1	
1.2.2.	Créer une ambiance acoustique extérieure satisfaisante
1.2.4.	Eclairage extérieur
1.2.5.	Assurer des espaces extérieurs sains
1.2.6.	Accessibilité, bien-être et convivialité
1.2.7.	Pollution visuell
1.3.2.	Assurer le droit aux vues aux riverains
1.3.3.	Assurer le droit à la santé aux riverains
1.3.5.	Limiter la pollution visuelle nocturne
3.2.3.	Limiter les nuisances dues au trafic
3.3.2.	Limiter la pollution de l'air
4.2.4.	Limiter les consommations des équipements électromécaniques

HQE - FRANCE

4.3.2.	Quantités d'équivalent SO_2 générées par l'utilisation de l'énergie
4.3.3.	Quantités de déchets radioactifs générées par l'utilisation de l'électricité du réseau
8.2.4.	Maîtrise de l'ambiance thermique par les usagers en période froide
8.4.4.	Maîtrise de l'ambiance thermique par les usagers en période chaude
9.2.6.	Sonorité à la marche des bureaux individuels
11.1.4.	Assurer une atmosphère saine dans les espaces
11.2.1.	dentifier et réduire les effets des sources d'odeurs
11.2.3.	Assurer une ambiance olfactive agréable dans les espaces
12.2.2.	Optimiser les conditions sanitaires des locaux d'entretien
12.2.3.	Favoriser une conception améliorant l'ergonomie afin de faciliter le nettoyage
13.1.4.	Assurer une atmosphère saine dans les espaces
14.3.1.	Maintenir les réseaux d'ECS et d'EFS à une température optimale
14.4.3.	Maîtriser les performances des traitements

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	■
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

The HQE certification is an option of a certified building. A building can be globally certified (for its standard) and the HQE comes as an option of the certification, as an environmental quality of the building. It means all certification bodies can add an HQE option to its own certification.

Usually, you follow the steps:

- Demand of certification
- Preparatory study
- Provisory evaluation
- Audit of the project
- Final evaluation
- Delivery of the final certification
- Conformity tests

Cost of the certification

Between 11.500 Euro and 44.000 Euro, depending of the surface.

Outputs of the certification process

The building certified has a label stating the reached level (B-P-TP).

Connection to legislation and technical standards

Regulations

As the HQE goes further of the regulation, there are no special links to the regulations;

Standards

French technical standards.

Incentives or granting schemes

No

Total Quality Building - AUSTRIA

Basic information

Name of the Tool	TQB (Total Quality Building)
Tool developer	OEGNB
Tool manager	ÖGNB
Used in following countries	Austria
First issued (year)	2002
Webpage	https://www.oegnb.net/

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	■

Time boundaries

Pre Design	
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	
Industrial	
Healthcare	
Hotel	
Other (please specify)	

Structure of the assessment system

Building use: all

Number of hierarchic levels	3
Number of issues at top level	5
Number of issues at middle level	19
Number of criteria (low level)	59
Number of environmental criteria	26
Number of social criteria	30
Number of economic criteria	3
Percentage of quantitative criteria	-
Number of mandatory criteria	-

Total Quality Building - AUSTRIA

Criteria by issues (Environmental, Social, Economic)

A	Site and equipment	200	Environmental	Social	Economic
A1 Quality of infrastructure		**50**			
A1.1	Access to public transports	20		■	
A1.2	Quality of local supply	10		■	
A1.3	Quality of social infrastructure	10	■		
A1.4	Quality of leisure und recreation infrastructure	10		■	
A2 Security of the site und quality of the building site		**50**			
A2.1	Primary exposure to natural disaster	10		■	
A2.2	Quality of the building site and sealing of the surface	20	■		
A2.3	Magnetic alternating electric fields in low frequency range	10		■	
A2.4	Distance to mobile phone transmitters	10		■	
A3 Quality of facilities		**50**			
A3.1	Local public infrastructure	10		■	
A3.2	Facility characteristics of the housing area	20		■	
A3.3	Urban open space referred to apartment	10		■	
A3.4	Protection against burglary	10		■	
A4 Barrier-free built environment and safety aspects		**50**			
A4.1	Barrier-free built	30		■	
A4.2	Protection against slipping and stumble	5		■	
A4.3	Protections to avoid falling down and impact protections	5		■	
A4.4	Lightning arrester	10		■	

B	Economic efficiency and technical quality	200	Environmental	Social	Economic
B1 Economic efficiency with regard to life cycle		**100**			
B1.1	Economic efficiency calculation-LCCA	50			■
B1.2	Integral planning and analysis of variants	25			■
B1.3	Basis for the building operations	25			■
B2 Building site organization		**30**			
B2.1	Building site organization and logistic	25	■		
B2.2	Wastage management at the building site	10	■		
B3 Flexibility and durability		**40**			
B3.1	Dimensioning and statically concept	20	■		
B3.2	Extensibility Removability of internal distributions	20	■		
B4 Fire protection		**30**			
B4.1	Requirements for fire area separating building elements	10		■	
B4.2	Fire alarm detectors	10		■	
B4.3	Special extinguishing installations	10		■	

C	Energy and supply units	200	Environmental	Social	Economic
C1 Energy demand		**75**			
C1.1	Energy demand for heating HWB	45	■		
C1.2	Final energy demand EEB	25	■		
C1.3	Air tightness of the building	10	■		
C1.4	Thermal bridges of the building	10	■		
C2 Energy supply		**75**			
C2.1	Primary energy demand	50	■		
C2.2	Photovoltaic-plant	20	■		
C2.3	Energy efficient ventilation machine	10	■		
C2.4	CO2-emissions from energy consumption	50	■		
C3 Water demand		**50**			
C3.1	Individual accounting for consumption	5	■		
C3.2	Utilization of rainwater	15	■		
C3.3	Water-saving sanitary facilities	15	■		
C3.4	Hygienic quality of warm and cold water	25	■		

D	Health and comfort	200	Environmental	Social	Economic
D1 Thermal comfort		**50**			
D1.1	Thermal comfort in Winter	20		■	
D1.2	Thermal comfort in Summer	30		■	
D1.3	Building automatization and comfort	20		■	
D2 Internal air quality		**50**			
D2.1	Ventilation	25		■	
D2.2	Low-emission constructing and building materials	35		■	
D2.3	Avoidance of mould-growth and humidity/pollutant inspection	10		■	
D3 Noise abatement		**50**			
D3.1	Ambient noise	10		■	
D3.2	Acoustically advantageous floor plan composition	10		■	
D3.3	Protection against airborne noise separating elements	10		■	
D3.4	Protection against impact noise of separating slabs	10		■	
D3.5	Dimensioning of the outside facade, noise level	10		■	
D3 Daylight und exposure to sunlight		**50**			
D4.1	Daylight factor	25		■	
D4.2	Direct exposure to sunlight in winter	25		■	

Total Quality Building - AUSTRIA

E	Efficiency of resources	200	Environmental	Social	Economic
E1 Avoidance of critical substances		**50**			
E1.1	Avoidance of HFCKW	15	■		
E1.2	Avoidance of PVC	35	■		
E1.3	Avoidance of VOC	5	■		
E2 Regionalism, percentage of recycling, certified products		**50**			
E2.1	Regionalism	20	■		
E2.2	Utilization of recycle-materials	10	■		
E2.3	Utilization of products with ambient certifications	20	■		
E3 Resource efficiency of the construction		**50**			
E3.1	OI3-calculation as guideline	50	■		
E4 Disposal of waste		**50**			
E4.1	Disposal indicators	50	■		

Criteria by weight

50	
B1.1	Economic efficiency calculation-LCCA
C2.1	Primary energy demand
C2.4	CO2-emissions from energy consumption
E3.1	OI3-calculation as guideline
E4.1	Disposal indicators
45	
C1.1	Energy demand for heating HWB
35	
D2.2	Low-emission constructing and building materials
E1.2	Avoidance of PVC
30	
A4.1	Barrier-free built
D1.2	Thermal comfort in Summer
25	
B1.2	Integral planning and analysis of variants
B1.3	Basis for the building operations
B2.1	Building site organization and logistic
C1.2	Final energy demand EEB
C3.4	Hygienic quality of warm and cold water
D2.1	Ventilation
D4.1	Daylight factor
D4.2	Direct exposure to sunlight in winter
20	
A1.1	Access to public transports
A2.2	Quality of the building site and sealing of the surface
A3.2	Facility characteristics of the housing area
B3.1	Dimensioning and statically concept
B3.2	Extensibility Removability of internal distributions
C2.2	Photovoltaic-plant
D1.1	Thermal comfort in Winter
D1.3	Building automatization and comfort
E2.1	Regionalism
E2.3	Utilization of products with ambient certifications
15	
C3.2	Utilization of rainwater
C3.3	Water-saving sanitary facilities
E1.1	Avoidance of HFCKW
10	
A1.2	Quality of local supply
A1.3	Quality of social infrastructure
A1.4	Quality of leisure und recreation infrastructure
A2.1	Primary exposure to natural disaster

A2.3	Magnetic alternating electric fields in low frequency range
A2.4	Distance to mobile phone transmitters
A3.1	Local public infrastructure
A3.3	Urban open space referred to apartment
A3.4	Protection against burglary
A4.4	Lightning arrester
B2.2	Wastage management at the building site
B4.1	Requirements for fire area separating building elements
B4.2	Fire alarm detectors
B4.3	Special extinguishing installations
C1.3	Air tightness of the building
C1.4	Thermal bridges of the building
C2.3	Energy efficient ventilation machine
D2.3	Avoidance of mould-growth and humidity/pollutant inspection
D3.1	Ambient noise
D3.2	Acoustically advantageous floor plan composition
D3.3	Protection against airborne noise separating elements
D3.4	Protection against impact noise of separating slabs
D3.5	Dimensioning of the outside facade, noise level
E2.2	Utilization of recycle-materials
5	
A4.2	Protection against slipping and stumble
A4.3	Protections to avoid falling down and impact protections
C3.1	Individual accounting for consumption
E1.3	Avoidance of VOC

Certification Process

Who issues the certificate

The manager/owner of the system	
Certification bodies	■
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

Synthetic description of the certification process

1. Documentation of the building by a (ÖGNB-consultant). Online declaration by using the online TQB-tool.
2. Delivery of the certification to the ÖGNB by the ÖGNB-consultant and request to check the documentation. After the payment of the fee the ÖGNB assigns the documentation to an ÖGNB-controller.
3. Evaluation and control of the documentation. If case of insufficiency the documentation is downgraded to the documentation phase. When all questions are solved the evaluation can be concluded. The result is communicated to the owner, who has the possibility to hand in later documents.
4. Release of the evaluation. Presentation and discussion of the evaluation report with the building owner.
5. Publication of the result in the ÖGNB media. Publication of the final results and the categories of the 5 results on the data base.

Cost of the certification

For objects until 1.000 m² total floor area BGF: BGF x 0,4 Euro

Surface BGF m²	Planning pass	Construction pass	Total
150	60,-	60,-	120,-
500	200,-	200,-	400,-
1.000	400,-	400,-	800,-

Total Quality Building - AUSTRIA

For objects with a total floor area 1.000 m² - 10.000 m² BGF : 400 Euro + (BGF-1000) x 0,3 Euro

Surface BGF m²	Planning pass	Construc-tion pass	Total
2.000	700,-	700,-	1.400,-
3.000	1.000,-	1.000,-	2.000,-
4.000	1.300,-	1.300,-	2.600,-
6.000	1.900,-	1.900,-	3.800,-
8.000	2.500,-	2.500,-	5.000,-
10.000	3.100,-	3.100,-	6.200,-

For objects with a total floor area 10.000 m² - 25.000 m² BGF: 3.100 Euro + (BGF-10000) x 0,2 Euro

Surface BGF m²	Planning pass	Construc-tion pass	Total
12.500	3.600,-	3.600,-	7.200,-
15.000	4.100,-	4.100,-	8.200,-
17.500	4.600,-	4.600,-	9.200,-
20.000	5.100,-	5.100,-	10.200,-
22.500	5.600,-	5.600,-	11.200,-
>=25.000	6.100,-	6.100,-	12.200,-

Prices 08.06.2010, exclusive of VAT. The remuneration of the ÖGNB-consultant is not included.

Outputs of the certification process

Publication of the overall result, the results of the 5 topics and a report on the online database:

Connection to legislation and technical standards

Regulations

-

Standards

Criteria are referred to following standards:

- economic efficiency calculation: LCCA, ÖNORM M 7140/ VDI 2067/ ISO 15686-5
- Fire detector: TRVB N 115
- Energy consumption for heating: Passive house standard, OIB Richtlinie 6, 1.1.2010
- Thermal comfort in winter: EN ISO 7730
- Thermal comfort in summer: ÖN B1800-3. PHPP
- Ventilation machine: ÖN H 6038, DIN 1946, DIN EN 779

Noise protection: ÖN B 8115-2

Incentives or granting schemes

-

MINERGIE ECO / P-ECO SWITZERLAND

Basic information

Name of the Tool	MINERGIE ECO / P-ECO
Tool developer	Association Minergie/ Verein Minergie (AMI)
Tool manager	Association Minergie/ Verein Minergie (AMI)
Used in following countries	Switzerland and Liech-tenstein
First issued (year)	-
Webpage	http://www.minergie.ch

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	
Others (please specify)	

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

Time boundaries

Pre Design	
Design	■
Construction	■
Operation	
Refurbishment	
Existing buildings	

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	
Industrial	
Healthcare	
Hotel	
Other (please specify)	

Structure of the assessment system

Building use: all

Number of hierarchic levels	3
Number of issues at top level	2
Number of issues at middle level	6+1
Number of criteria (low level)	55
Number of environmental criteria	25
Number of social criteria	30
Number of economic criteria	0
Percentage of quantitative criteria	15
Number of mandatory criteria	5

Minergie-ECO is a questionnaire of 235 criterion, with 10 exclusion criterion. The assessment takes in account the design phase and the construction phase. In the study for comparability reasons, only the criteria dealing with the design phase have been considered.

MINERGIE ECO / P-ECO SWITZERLAND

Criteria by issues (Environmental, Social, Economic) and weight – Design Phase

Noise		Criteria weight	Environmental	Social
L02	Level of noise in exterior spaces	5%		
L03	Envelope protection from external aerial noise	5%		
L04	Protection from noise in the indoor living spaces (apartments)	5%		
L06	Protection from noise in the indoor spaces (technical installations)	5%		
L08	Protection from noise transmission between the	5%		

Indoor air quality		Criteria weight	Environmental	Social
A02	Technical plants (ventilation and air conditioning)	5%		
A03	Assessment of radon presence based on maps	5%		
A04	Strategies to reduce the exposition to radon	5%		
A05	Preventive chemical protection of wood elements	5%		
A06	Preventive chemical protection of wood elements in the rooms	5%		
A07	Emissions of formaldehyde	5%		
A08	Emissions of solvents	5%		
A09	Cleaning aptitude (ventilation and air conditioning)	5%		
A10	Ventilation after building construction	5%		
A11	Ventilation rate regulation (ventilation and air conditioning)	5%		

Materials		Criteria weight	Environmental	Social
R01a	Building compactness ratio (level 1)	3%		
R01b	Building compactness ratio (based on building type)	3%		
R01c	Building compactness ratio (level 3)	3%		
R02	Construction Technique (bearing structure)	3%		
R03	Construction Technique (façade)	3%		
R04	Structure optimization (direct loads)	3%		
R05W	Small loads	3%		
R06a	Façade duration (coating)	3%		
R06b	Façade duration (footing and roof gutter)	3%		
R06c	Façade duration (windows)	3%		
R07W	Adaptability constraints imposed by structure (apartments)	3%		
R08	Adaptability constraints imposed by façade	3%		
R09	Access to vertical technical installations	3%		
R10	Access to horizontal technical installations	3%		
R11	Constraints for big technical installation replacement	3%		

R12	Floors filled in	3%		
R13	Recycled concrete	3%		

Construction		Criteria weight	Environmental	Social
H01	Soil pollution assessment and reclamation measures	4%		
H02	Building heating in the construction site	4%		
H03	Building technique	4%		
H04	Facing	4%		
H06	Materials for roof and façade	4%		
H07a	Roof material	4%		
H07b	Roof material (flat roof)	4%		
H08	Renunciation of walls coating (massive construction)	4%		
H09	Renunciation to floor coating (massive construction)	4%		
H10	Material for floor coating	4%		
H11	Transparent percentage of the envelop	4%		
H12	Site preparation (deconstruction of existing buildings)	4%		
H13	Site preparation (tillage)	4%		

Complementary issues		Criteria weight	Environmental	Social
ZB01	Competition assuming the SNARC or Albatros method	3%		
ZB02	Birds protection	3%		
ZB03	Water use	3%		
ZG01	Protection from noise in the indoor living spaces (apartments)			
ZG03	Protection from noise in the indoor spaces (technical installations)			
ZG04	Not ionizing radiation			
ZG05	Pollutants analysis			

MINERGIE ECO / P-ECO SWITZERLAND

Certification Process

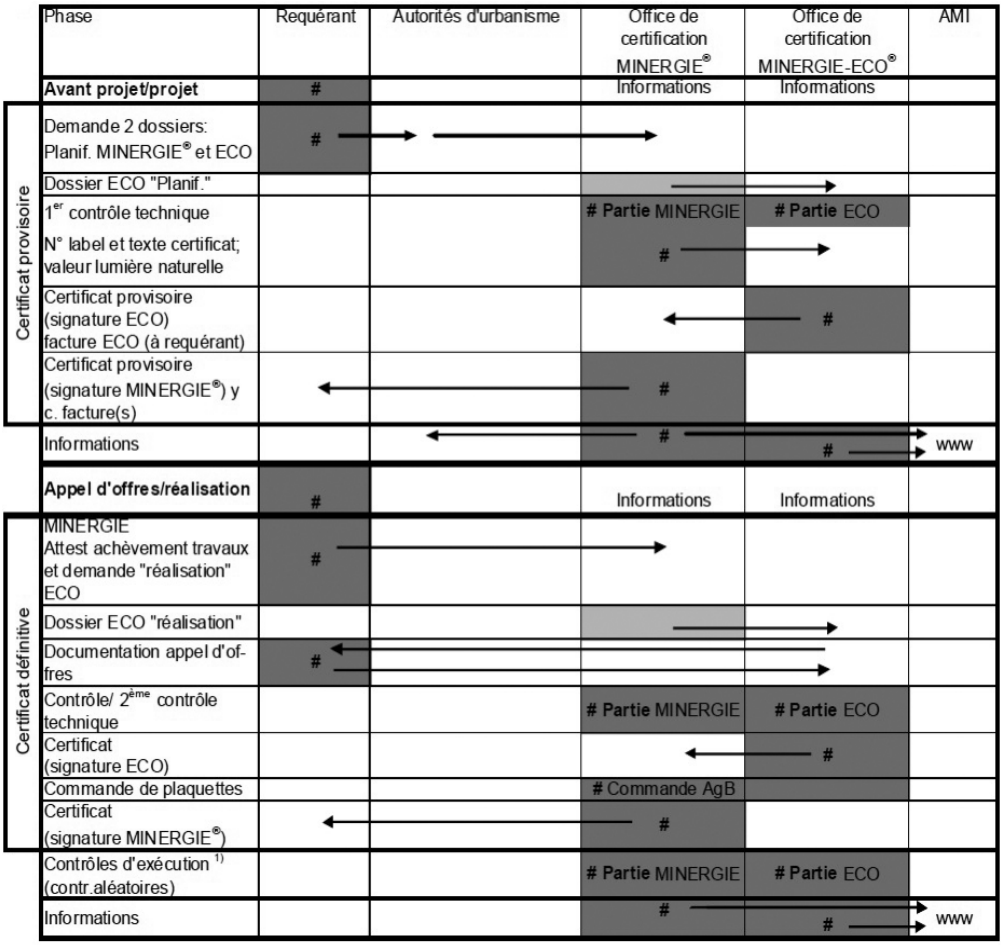
Who issues the certificate

The manager/owner of the system	
Certification bodies	
Accredited assessors (direct)	
Accredited assessor, after a check from the manager/owner of the system	
Other (please state)	

Synthetic description of the certification process

The certification process is organise in 8 steps:

1. request for the Minergie-Eco certification for the preliminary/design phase
2. technical evaluation of the request for the preliminary/design phase
3. temporary certification
4. request for the Minergie-Eco certification for the call for the tender/construction phase
5. technical evaluation of the request for the tender/construction phase
6. indoor air quality measurements
7. Certificate issue
8. Ramdom controls



Cost of the certification

2.000 Fr – 7.500 Fr

Outputs of the certification process

The output of the certification process is a Certificat. The fulfilment of the 67% (2/3) of the criteria included in the system is necessary to obtain the certificate.

Connection to legislation and standards

Regulations

-

Standards

Minergie ECO / P-ECO is connected to the Swiss Techical Standards and in parrticular to the SIA 112/1.

Incentives or granting schemes

-

Certificat MINERGIE-ECO®

N° xx – xxx – ECO

<L'immeuble xxx, rue xxx à 1234 xxx, équipé d'une <excellente isolation thermique xxx> remplit les exigences du

Standard MINERGIE-ECO®

préconisé par les cantons, la Confédération, les milieux économiques et l'association eco-bau. Le bâtiment atteint une qualité d'habitat exceptionnelle avec un confort thermique élevé, un air intérieur sain, un bon éclairage naturel et de faibles nuisances sonores.
Le mode de construction exemplaire au niveau énergétique et écologique, de la fabrication des matériaux de construction jusqu'à leur déconstruction, occasionne seulement de faibles nuisances pour l'environnement et permet de préserver les ressources naturelles. Pour ces raisons, le bâtiment présente un maintien de la valeur supérieur à la moyenne.

Le bâtiment peut recevoir la désignation de 'maison MINERGIE-ECO®'.

xx, le <xx. xxxx 20xx >

Office de certification MINERGIE®

xxx
xxx

Zurich, le < xx. xxxx 20xx >

Office de certification MINERGIE-ECO®

Severin Lenel
Chef de l'office de certification

MINERGIE-ECO®

www.minergie.ch

Comparison tables and statistics

In this section of the document the main results of the transnational comparison study are illustrated. Comparison tables have been developed to describe the results with regard to the elements evaluated:

1. Users
2. Physical boundaries
3. Time boundaries
4. Building uses
5. Key data: structure of the assessment systems
6. Key criteria in the assessment systems
7. Certification process
8. Legislation

1 - Users

A building assessment system allows defining the reference performance benchmarks for sustainable building. This means that it is a standard of interest for all the stakeholders of the building sector:

- Designers. The use of the assessment systems is useful to establish the performance target of the building and to guide the development of the design with an integrated approach;
- Consultants. The assessment of the building's performance could require specific consultancy from experts. For instance in the energy calculation, daylighting level evaluation, etc..
- Construction companies. A certification label qualifies on the real estate market an high performance building or it can give access to public incentives;
- Investors. A green building protects in the middle long term an investment more than a standard one. It is more attractive for tenants and buyers and less exposed to policies that would penalize low performance constructions (high consumptions, elevate rate of CO_2 emissions, bad comfort, etc..);
- Public institutions have fund in the environmental certification a powerful tool to support their policies aimed to promote sustainable building. A certification label allows to fix performance targets and to control the fulfillment of the requested requirements in an objective way;
- Consumers/end users benefit from a certification label in having more information to choose the convenient apartment/building to buy or to rent. An environmental certificate declares consumptions, impacts and also the level of indoor comfort;
- Researchers can test the assessment tools used in the certification processes in the way to understand how to improve them and the effectiveness in reaching a positive impact on building practice;
- Other users can include social houses companies that benefit of extra funds on the base of buildings performance levels.

The comparison between the different certification systems shows homogeneity with respect of users.

The only exception is the Protocollo ITACA Regione Piemonte that is at moment used only in the context of policies aimed to provide incentives for sustainable buildings. This means that the certification is not available on the market and private buildings cannot be labeled. The main stakeholder interested are the social housing companies that benefit of extra founds in the case of high performance buildings (Social Housing Program 10.000 apartments by 2012). The restricted application of Protocollo ITACA to „public buildings" makes not of interest the certification for investors.

Together with Protocollo ITACA, BDM is a „public" certification system that supports regional policies (Piedmont Region and PACA Region).

USERS	P. Itaca R.P.	LEED Italia	Casaclima Nature	DGNB	Total Quality	BDM	HQE	Minergie ECO
Designers								
Consultants								
Construction companies								
Investors								
Public institutions								
Consumers / end-users								
Researchers								
Other								

Comparison table 1 – Users

2 - Physical boundaries

Most of the certification systems take in account in the performance assessment both the building and the site. The only exception is Casaclima Nature that focuses the evaluation only on the building. The criteria related to the site assess aspects like transport and services proximity, the ecological value of land the use, the urban density.

A critic moved to systems that take in account the site in the performance assessment of the building, is that the location doesn't depend from a designer's choice. But in general a sustainability evaluation must take into consideration the location of the site. A passive house in the wrong place, for instance in the middle of an uncontaminated wood far from any service, cannot be considered sustainable. Different actors are responsible for the sustainability of a construction, from the designers to the urban planner. A solution could be the one proposed by DGNB: the score of the building and of the site are showed separately. In this way the designers are fully awarded for their engagement in sustainable building.

There are no systems evaluating the sustainability at the neighborhood scale. Following the need expressed by the Italian regions to have at disposal a rating system able to operate at the urban scale, a specific version of Protocollo ITACA is under development. A version of LEED Italia for neighborhoods is under adaption also.

Physical Boundaries	P. Itaca R.P.	LEED Italia	Casaclima Nature	DGNB	Total Quality	BDM	HQE	Minergie ECO
Building								
Site								
Neighbourhood								

Comparison table 2 – Physical boundaries

Comparison tables and statistics

3 - Time boundaries

The time boundary of the analyzed systems is usually from the pre-design to the as built phase.

In the pre-design phase the issues related to the location selection are considered. The selection of the site takes place usually before the design of the building. The only assessment system that doesn't include criteria related to the site is Casaclima Nature that is focused only to the building.

For the majority of the assessment systems, the certification process is concluded at the as-build phase, the moment where the building is constructed but still not operative. If conformity between the design and the real building is validated the certificate is issued. BDM is the only system that includes in the certification process the operative phase. The performance of the building is monitored for a period of time after the construction competition. If the expected performance is achieved, the certificate is issued. LEED, after the construction competition, asks to monitor the energy consumptions during operation.

Some assessment systems (for instance BDM and HQE) include criteria related to the environmental impact of the construction site.

All the assessment systems are applicable to buildings that are renovated.

There are no systems applicable to „in use buildings" to assess the actual performance. All the assessment systems are only applicable to existing constructions that are renovated.

Specific research on this field is under development at international level, to answer the need expressed by building stock managers (public and private), investors and real estate operators.

Time Boundaries	P. Itaca R.P.	LEED Italia	Casaclima Nature	DGNB	Total Quality	BDM	HQE	Minergie ECO
Pre Design								
Design								
As Built								
Operation								
Refurbishment								
In use buildings								

Comparison table 3 – Time boundaries

4 - Building uses

All the assessed systems allow evaluating residential buildings, office buildings and schools. The only exception is Protocollo ITACA Regione Piemonte and LEED Italia. The first one, being conceived to be applied in the context of funding programs for social houses, doesn't allow assessing office buildings. LEED Italia for schools is under adaptation from the U.S. version. The Piedmont Region has developed a version of Protocollo ITACA for retail buildings (supermarkets) to sustain a new policy to promote sustainable buildings in the commercial field.

Residential buildings, offices and schools result to be the uses considered most important.

5 - Key Data: structure of the assessment systems

The key data concerning the framework of the eight assessment systems have been analyzed in the way to evaluate differences and similarities.

The elements considered in the study are: the number of: hierarchic levels, issues at top level, issues at middle level, criteria, environmental criteria, social criteria, economic criteria.

Building Uses	P. Itaca R.P.	LEED Italia	Casaclima	DGNB	TQ	BDM	HQE	Minergie ECO
Residential/dwellings								
Offices								
Schools								
Retail								
Industrial								
Healthcare								
Hotel								

Comparison table 4 – Building uses

Structure Key Data	P. Itaca R.P.	LEED Italia	Casaclima Nature	DGNB	Total Quality	BDM	HQE	Minergie ECO
Number of hierarchic levels	3	2	1	3	3	3	3	3
Number of issues at top level	5	7	5	6	5	5	14	2
Number of issues at middle level	11	-	-	8	19	14	42	6+1
Number of criteria (low level)	20	64	5	49	59	28	159	235
Number of environmental criteria	13	36	5	18	26	23	62	25*
Number of social criteria	7	10	-	19	30	5	97	30*
Number of economic criteria	0	4	0	2	3	0	0	0*
Percentage of quantitative criteria	45%	77%	100%	39%	/	7%	36%	15%*

Comparison table 5 – Structure key data
(*) Minergie ECO: only the criteria dealing with the assessment in the design phase have been included.

Analysis of the comparison results

Most of the systems are organized on three hierarchic levels: issues, categories of criteria and criteria. The two exceptions are LEED Italia and Casaclima Nature. LEED Italia is organized only in two levels (issues and criteria). Casaclima Nature is composed only by 5 criteria that are not organized in any hierarchic structure.

The mean number of issues at top level is 5. Generally these issues are dealing with: quality of site, energy, water, materials, indoor comfort. HQE presents the larger number of issues at top level (14), while Minergie ECO the smaller (2).

The mean number of issues at middle level ranges from 7 to 19. The exception is HQE that includes 42 categories of criteria. This large number depends from the articulation of issues at top level (14).

The number of criteria at low level ranges from 5 to 235. Casaclima Nature presents the smaller number of criteria (5), while Minergie ECO the largest (235). Casaclima Nature presents the smaller number of criteria (5), while HQE the largest (159).

Protocollo ITACA (20) and BDM (28) have a similar number of criteria. They both have a „public" origin (Piedmont Region and PACA Region). The limited number of criteria tends to facilitate the application of the system also maintaining a high scientific rigor.

DGNB (49), LEED (64) and Total Quality (59) have also a similar number of criteria. DGNB and LEED are promoted by the relative national green building councils and where developed primarily to be applied in the real estate market. Total Quality derives from the international assessment system GBTool, developed by means of the international Green Building Challenge process.

The large number of criteria in the Minergie ECO and HQE systems depends on the methodology at the base of the tools. HQE and Minergie ECO are organized as a check list that evaluates not only the increase of performance toward the base practice but also the achievement of this one.

The environmental and social issues are the most present in the assessment systems. The ones with the majority of criteria related to the environmental issues are: Protocollo ITACA, BDM, Casaclima Nature and LEED Italia. The assessment system with the majority of criteria related to the social issues is HQE, Total Quality and Minergie ECO. The DGNB system shows equilibrium between social and environmental issues.

Only two systems include economic criteria: DGNB and Total Quality, both from the German area. This is due to a lack of available and validated indicators for the economic performance of buildings. Different research programs are under development in this sense.

The percentage of quantitative criteria allows grouping the assessment systems in two categories: performance based and design strategies based.

The systems belonging to the first category are characterized by criteria using quantitative indicators that are targeted to evaluate a performance trough a calculation. This kind of criteria doesn't take in account the kind of strategy adopted but only the level of performance achieved.

The systems belonging to the second category give more importance to the strategies and solutions adopted by the design teams, including many criteria that act as design guidelines. This kind of systems is particularly useful in the context where an education activity on sustainable building is needed. The performance based systems at contrary are usually targeted for an application on the market because characterized by major objectivity.

The most performance based systems result to be LEED Italia and Casaclima Nature. The most „design strategies" based BDM, HQE and Minergie ECO. More balanced between the two are Protocollo ITACA and DGNB.

6 - Key criteria in the assessment systems

The comparison table visualizes the 10 most important criteria (key criteria) by weight in the 8 assessment systems analyzed. The objective is to understand the priorities given to the different sustainable issues: energy (including emissions), water, construction materials, quality of site, quality of service quality, economy, indoor comfort, quality of process and waste. The mandatory criteria have not been considered. This „by weight" analysis is not applicable to Minergie ECO where the criteria have almost the same importance. Depending on each assessment system method, the weight of the criteria has been established:

- on the base of the contribution (percentage) of the criterion to the final score (for instance Protocollo ITACA);
- on the base of the score given by the criterion (for instance LEED Italia).

The analysis has to be considered qualitative with some simplifications, given the fact that the assessment systems have implemented different weighting procedures.

Analysis of the comparison results

The 85% of the most important criteria are dealing with the environment.

The distribution of criteria among the different sustainability issues is:

energy	37%
materials	20%
water	9%
site	9%
comfort	6%
process	6%
service	5%
waste	5%
economy	3%

Top 10 Criteria	P. Itaca	LEED Italia	Casaclima Nature	DGNB	Total Quality	BDM	HQE	Minergie ECO
ENERGY	Technical documentation	Optimize nergy performance	Energy consumption for heating	Global Warming Potential (GWP)	Primary energy demand	Thermal mass	Primary energy deamand	N.A.
WATER	U value	On site renewable energy	CO2 emissions	Building-related Life Cycle Costs	CO2-emissions from energy consumption	Healthy materials	Healthy materials	
MATERIALS	Net Energy heating	Alternative transportation	Primary energy (product manufacturing)	Thermal Comfort in the Summer	OI3-calculation as guideline	Local materials	Exploitation of construction activity waste	
SITE	Primary energy heating	Development density	Acidification (product manufacturing)	Indoor Hygiene	Disposal indicators	Recycled materials	Water consumptions for indoor uses	
SERVICE QUALITY	Solar radiation control	Water efficient landscaping	Global warming potential (product manufacturing)	Visual Comfort	Economic efficiency calculation-LCCA	Renewable energy	Building adaptability	
ECONOMY	Thermal mass	Water use reduction		Quality of the Project's Preparation	Energy demand for heating HWB	Public transports	Daylight	
COMFORT	Sanitary Hot Water	Building Reuse		Integral Planning	Avoidance of PVC	Proximity to services	Water retention on site	
PROCESS	Potable water for indoor uses	Measurement and verification		Optimization and Complexity of the Approach to Planning	Low-emission constructing and building materials	Costruction site wastes	Construction materials reuse	
WASTE	P.V. Energy	4 criteria on materials		Quality assurance of the construction activities + Systematic commissioning	Barrier free built	Water consumptions minimisation	Energy consumptions monitoring	
	CO2 Emissions	3 criteria on energy		Connection to transportation	Thermal comfort in summer	Solar radiation control + consumptions monitoring	Transport optimisation	

Comparison table 6 – Top 10 criteria ordered by weight

More than the 50% of the key criteria are dealing with energy and construction materials that results to be the two most important issues.

The most important criterion is usually energy related. The only exception is Protocollo ITACA that gives more importance to the availability of the technical documentation for maintenance operations. Also if the following 9 most important criteria are energy related. The most important criterion for BDM is „Thermal mass" for the cooling seasons. This fact indicates a strong contextualization on the tool to the Mediterranean issues.

For each assessment system, the number of issues represented in the 10 key criteria is:

HQE	7
DGNB	5
Total Quality	5
BDM	5
LEED Italia	4
Protocollo ITACA R.P.	3
Casaclima Nature	2

HQE is the assessment system with the larger number issues represented in the 10 key criteria. Casaclima Nature is the one with the most limited number (2).

The more „Nordic" systems (DGNB, Casaclima and Total Quality) are not including between the 10 key criteria any criterion related to water consumption. Protocollo ITACA, LEED, BDM and HQE that are also applied in the Mediterranean areas include water consumption related criteria.

DGNB is the only assessment system that present criteria related to the quality of the process. This indicates a strong attention in particular to the quality of planning, considered strategic for the future performance of the building. Most of the systems are not assessing directly this issue, also if their use by the design team indirectly supports the adoption of an integrated design approach.

DGNB and Total Quality are the only two assessment systems that include economic criteria in the first 10 by weight. Other systems consider this issue indirectly assessing environmental performances (for instance materials use) adopting economic indicators (by cost). This aspect is related to the scarce availability in all the context of validated economic indicators.

Comparison tables and statistics

7 - Certification Process

In the majority of certification systems, the certificate is issues by a certification body. In the case of BDM and Casaclima Nature it is the certification owner that issues the certificate and validates the technical documentation. The choice related to Casaclima is for have the stricter control in the validation process. The Protocollo ITACA Regione Piemonte certification is issued by ITACA trough iiSBE Italia. The certification activity is imitated in the context of regional funding programs for social housing. The Minergie ECO certificate is delivered by the Cantonal Office of Certification.

The output of the certification process is a label.

Protocollo ITACA Regione Piemonte and BDM have the lowest certification costs. This reflects their public origin and use. The range of cost for commercial systems like DGNB and LEED is quite wide, depending on the size of the building. The higher cost is from 20.000 to 40.000 Euro. The cost of certification doesn't include the cost for developing the technical documents requested by the certification process. Simulations, modeling, commissioning, measurements could have a cost superior to the certification one. This cost is contained as much the assessment system is linked to the national/regional regulations and technical standards.

Certification process	P. Itaca	LEED	Casaclima	DGNB	TQ	BDM	HQE	Minergie ECO
The manager/owner of the system								
Certification bodies								
Accredited assessors (direct)								
Accredited assessor, after validation								
Other (please state)	ITACA							Cantonal Office of Certification
Output	Letter of certification	Letter of certification	Certification label	Certification label	Certification label	Statement	Certification Label	Certificate
Cost (euro)	Free	1.825 – 22.200	1.500-5.000	4.000-28.000	120-12.200	250 + 1,5 euro/m2 above first 100 m2	11.550 – 44.000	2000 Fr – 7500 Fr

Comparison table 7 – Certification process

8 - Legislation

In general, all the assessment systems are strongly linked to the national technical standards that are used for the calculation of many indicators.

LEED Italia is related to both Italian standards (UNI) and ASHRAE.

All the systems are basically voluntaries.

The exceptions are Protocollo ITACA and LEED ITALIA that are mandatory in some incentive policies of the Piedmont Region and Province of Trento.

Legislation	P. Itaca	LEED	Casaclima	DGNB	TQ	BDM	HQE	Minergie ECO
Regulations	No	Yes	Yes	No	No	Yes	No	-
Standards	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Incentives	Yes	Yes	No	No	No	Yes	No	-

Comparison table 8 – Legislation

Enerbuild tool and existing labels

In the WP6.2/6.3 of the Enerbuild project, it has been implemented the Enerbuild Tool, an inter-regional assessment tool to evaluate the environmental, social and economic performance of public buildings in the Alpine regions.

The base of the Enerbuild tool has been developed in the INTERREG IIIB project NENA and the region of Vorarlberg. The preliminary tool has been applied in the region.

The framework of the Enerbuild Tool is the following:

Nr.		Title	Must criterias (M); Minimum standard	max. Points
A		**Quality of location and facilities**		**max. 100**
A	1	Access to public transport network		50
A	2	Ecological quality of site		50
B		**Process and planning quality**		**max. 200**
B	1	Decision making and determination of goals		25
B	2	Formulation of verifiable objectives for energetic and ecological measures	M	20
B	3	Standardized calculation of the economic efficiency	M	40
B	4	Product-management - Use of low-emission products		60
B	5	Planning support ofr energetic optimization		60
B	6	Information of users		25
C		**Energy & Utilities**		**max. 350**
C	1	Specific heating demand (PHPP)	M	100
C	2	Specific cooling demand (PHPP)	M	100
C	3	Primary energy demand (PHPP)	M	125
C	4	CO_2-emissions (PHPP)		20
D		**Health and Comfort**		**max. 250**
D	1	Thermal comfort in summer		100
D	2	Ventilation - non energetic aspects		50
D	3	Daylight optimized (+ lightening optimized)		50
E		**Building materials and construction**		**max. 200**
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200

Users

Designers	■
Consultants	■
Construction companies	■
Investors	■
Public institutions	■
Consumers / end -users	■
Researchers	■
Others (please specify)	

As for all the other compared labels (excluding Protocollo ITACA Regione Piemonte), the potential users of Enerbuild Tool are all the main stakeholders of the building sector.

Time and physical extends

Pysical boundaries

Building	■
Site	■
Neighbourhood	

As the majority of the compared labels, the physical boundaries Enerbuild Tool are the building and its relative site. The tool is not applicable at the neighborhood scale.

Time boundaries

Pre Design	■
Design	■
Construction	■
Operation	
Refurbishment	■
Existing buildings	■

As the majority of labels, Enerbuild Tool is applicable to all life cycle stages of a building, excluding operation.

The building assessment takes place in two main stages:

- presentation of the design technical documentation for validation;
- construction completion.

The Pre-design phase is considered of particular importance in the tool and this aspect reflects the intended use of the tool mainly for public buildings.

Building uses

Residential/dwellings	■
Offices	■
Schools	■
Retail	
Industrial	
Healthcare	
Hotel	
Other (please specify)	

Also in this case, Enerbuild Tool as the majority of labels is applicable to the uses that generally are considered the most important: offices, schools and residential buildings.

Structure of the assessment system

Building use: all

Number of hierarchic levels	2
Number of issues at top level	5
Number of issues at middle level	0
Number of criteria (low level)	16
Number of environmental criteria	11
Number of social criteria	4
Number of economic criteria	1
Percentage of quantitative criteria	69%
Number of mandatory criteria	5

The mean number of issues for the compared labels is 3. Enerbuild Tool presents only two levels: assessment areas and criteria. This aspect reflects the simple structure of the tool that includes only 16 criteria. The compact size of Enerbuild Tool should favour the time efficiency in its application.

The majority of criteria are related to the environmental issues. But, nevertheless the small total number of criteria in the tool, all the sustainability issues are taken in account.

The percentage of quantitative criteria is very high, in comparison with the labels analyzed in the study. This means that Enerbuild Tool allows performing god objective assessments, requiring the calculation of many quantitative indicators. Most of the qualitative criteria are in the „Process and planning" assessment area that, in a coherent way, has more an educational scope.

The mandatory criteria indicate that the focus of the tool is on energy, that is considered the most important issue in the tool. At contrary, because Enerbuild Tool is contextualized to Alps, there aren't criteria dealing with water consumptions. Water has not been considered a relevant sustainability aspect for buildings in the Alpine regions.

On the base of criteria weights in the tool, the most important criterion results to be the E1 „OI3TGH-lc ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)". The indicator associated to the criterion is quite complex and significant for the whole performance of the building with regard to construction materials. This is the reason of the high weight of the criterion. The energy issues are assessed by several criteria and their combined weight makes energy the most important aspect.

Enerbuild tool and existing labels

Criteria by issues (Environmental, Social, Economic)

Nr.		Title	Environmental	Social	Economic
A		**Quality of location and facilities**			
A	1	Access to public transport network	■		
A	2	Ecological quality of site	■		
B		**Process and planning quality**			
B	1	Decision making and determination of goals	■		
B	2	Formulation of verifiable objectives for energetic and ecological measures	■		
B	3	Standardized calculation of the economic efficiency			■
B	4	Product-management - Use of low-emission products		■	
B	5	Planning support ofr energetic optimization	■		
B	6	Information of users	■		
C		**Energy & Utilities**			
C	1	Specific heating demand (PHPP)	■		
C	2	Specific cooling demand (PHPP)	■		
C	3	Primary energy demand (PHPP)	■		
C	4	CO_2-emissions (PHPP)	■		
D		**Health and Comfort**			
D	1	Thermal comfort in summer		■	
D	2	Ventilation - non energetic aspects		■	
D	3	Daylight optimized (+ lightening optimized)		■	
E		**Building materials and construction**			
E	1	$OI3_{TGH-Ic}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)	■		

Criteria by weight

200			
E	1	OI3TGH-Ic ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)	
150			
D	1	Thermal comfort in summer	
125			
C	3	Primary energy demand (PHPP)	M
100			
C	1	Specific heating demand (PHPP)	M
C	2	Specific cooling demand (PHPP)	M
60			
B	4	Product-management - Use of low-emission products	
B	5	Planning support for energetic optimization	

50			
A	1	Access to public transport network	
A	2	Ecological quality of site	
C	4	CO_2-emissions (PHPP)	
D	2	Ventilation - non energetic aspects	
D	3	Daylight optimized (+ lightening optimized)	
40			
B	3	Standardized calculation of the economic efficiency	M
25			
B	1	Decision making and determination of goals	
B	6	Information for users	
20			
B	2	Formulation of verifiable objectives for energetic and ecological measures	M

Conclusions

Enerbuild Tool

The Enerbuild Tool results well structured with regard to its scope: assessment of public buildings.

In particular:

- the compact number of criteria facilitate its application on public buildings (time effective);
- the tool reflects all the sustainability issues: environmental, economic and social;
- the tool results well contextualized for the Alpine regions (well balanced weight distribution among the criteria);
- most of the criteria are quantitative (more objective assessment);
- the time and physical boundaries are aligned with the majority of the existing labels.

General

The transnational comparison of main the existing labels shows the absence of a common approach and the impossibility to compare the assessment results produced by the different tools. The scenario appears very confused.

The main critical issues that emerged from the study are:

- very different structures of the assessment tools;
- different assessment methods: coexistence of performance based and strategy based tools;
- different issues included in the tools;
- different ways to score the performance.

On the other hand, there is a convergence regarding the potential users, the physical and time boundaries, the building uses that are possible to assess.

These substantial differences between the assessment systems are not facilitating their wide diffusion at the European level. Common public policies and common market actions would need a common reference certification.

The first steps toward the needed harmonization of the sustainability certification systems should be:

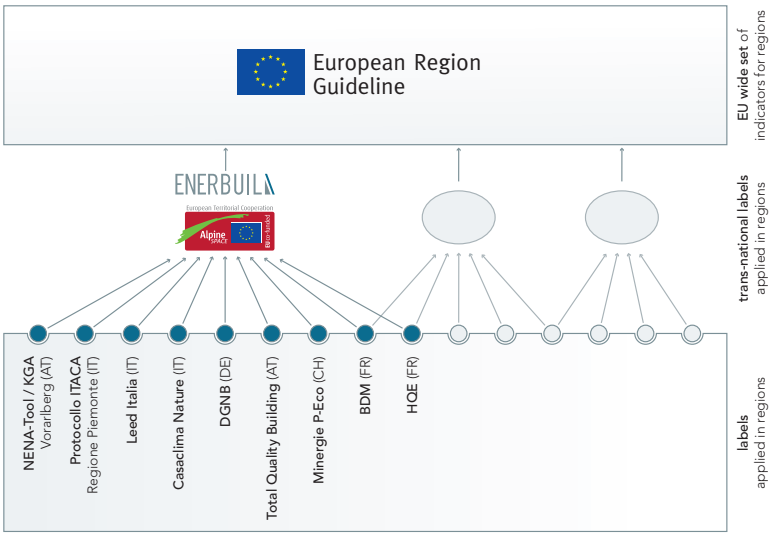
- to define common principles regarding building sustainability certification;
- to define a core of common criteria and indicators that would allow a comparison between the performances of buildings certified with different labels.

The first point concerns the need to agree for instance about the sustainability issues that should be taken in account, the assessment methodology, the contextualization procedures and the structure of tools.

The second point means that it would be necessary to identify at European level a common set of key criteria (and relative indicators) that should be adopted by the national/regionals labels in the way to allow the comparison of buildings performance.

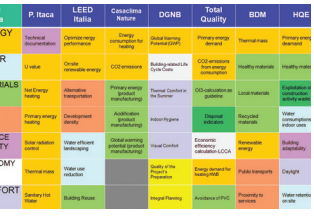
In this sense an interregional tool like Enerbuild Tool can play a key role. Enerbuild Tool is already a synthesis of the most important building assessment criteria in the Alpine region, having been recognized by all the project partners. From Enerbuild Tool it would be possible to extract the most significant indicators that could be part of the European common set. It would be fundamental to activate an interaction with other European projects that have similar objectives than Enerbuild and focused on different geographical areas in the way to define a consensus based set of core criteria applicable and significant for all Europe.

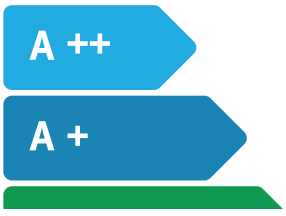
The European regions have the opportunity to play a key role to facilitate a harmonization of certification systems.

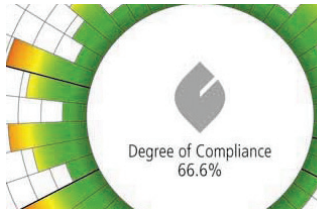


To reach this objective it would be necessary to implement a common platform between the European regions with the objective to follow in the definition of a common approach to environmental building certification and to promote the harmonization of certification systems.

February 2011







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