

iiSBE

the International Initiative for a Sustainable Built Environment

April 2010



iiSBE at a glance

- An international non-profit organization;
- Focus on guiding the international construction industry towards sustainable building practices;
- Emphasis is on research and policy, with a special emphasis on information dissemination, building performance and its assessment;
- 400 members, 23 Board members from 20 countries;
- Office is in Ottawa and (soon) in Maastricht;
- Local chapters exist in Czech Republic, Israel, Italy, Poland, Portugal, Spain, Taiwan and Korea;
- Andrea Moro is President, Nils Larsson is XD.
- No paid staff, very active network. in Helsinki in 2011.

iiSBE –activities

- Leadership of the international *Sustainable Building Challenge* process (formerly GBC process);
- In partnership with CIB and UNEP, sponsorship of international *SB conferences*;
- Development of GBC rating framework, now called SBTool;
- Operation of SBIS, a web-based database of SB information;
- Technical meetings in the Spring and Fall;
- Active networking support;
- Operation of working groups on:
 - *Rating system survey*
 - *Urban indicators*
 - *Zero built environment*
 - *Synergy Grids*
 - *Sustainable Infrastructure*

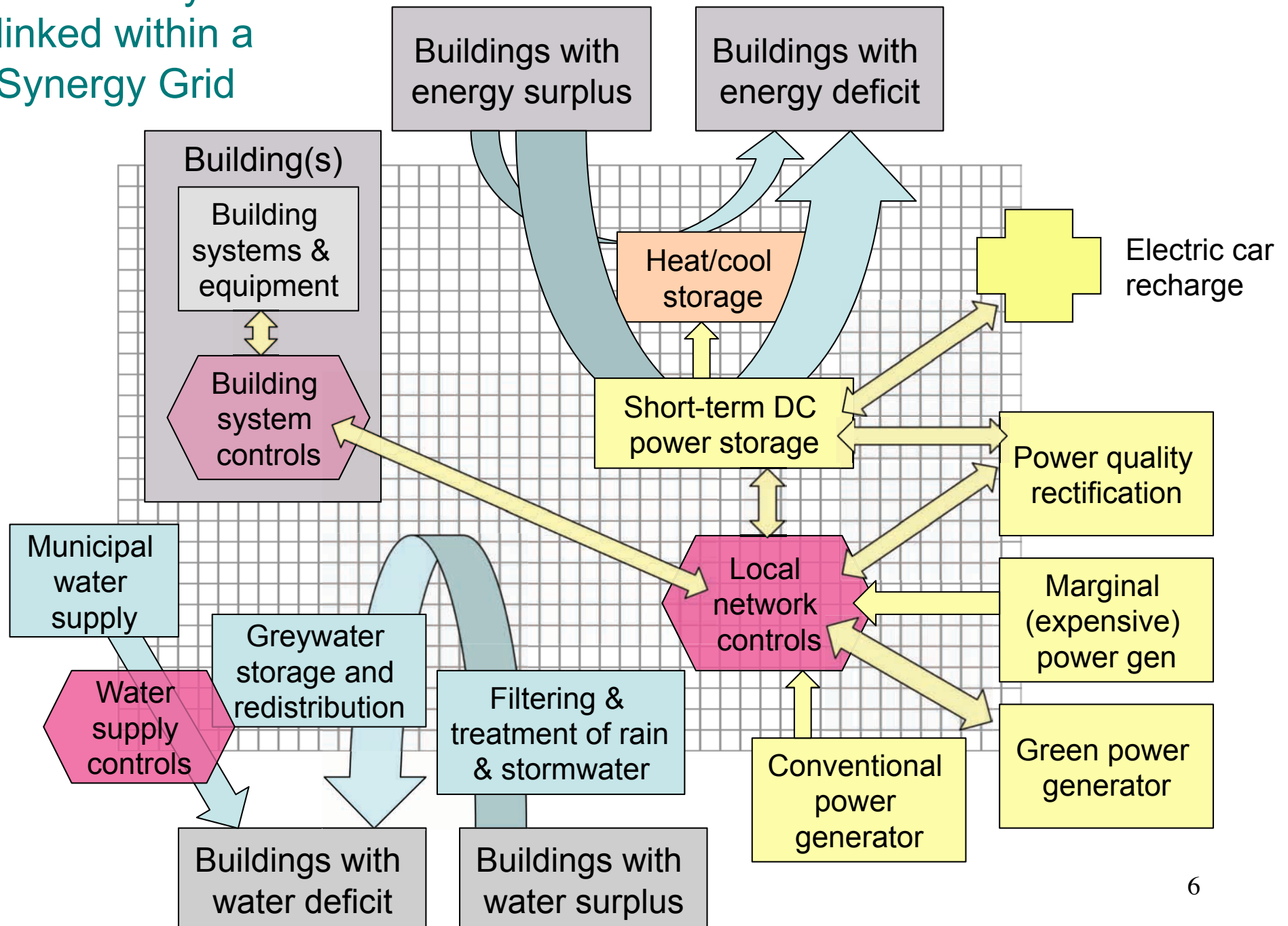
Board of Directors, 2010-2011

▪ Joel Ann Todd	USA
▪ Luis Alvarez Ude	Spain
▪ Faridah Shafii	Malaysia
▪ Sung Woo Shin	Korea
▪ Thomas Lützkendorf	Germany
▪ Marcin Malinowski	Poland
▪ Kaarin Taipale	Finland
▪ Nori Yokoo	Japan
▪ Greg Foliente	Australia
▪ Hal Levin	USA
▪ Wynn Chi-Nguyen Cam	<u>Singapore</u>
▪ Stephen Lau	Hong Kong
▪ Petr Hajek	Czech Republic
▪ Jean Cinq-Mars	Canada
▪ Ilari Aho	Finland
▪ Manuel Macias	<u>Spain</u>
▪ Serge Salat	France
▪ Luis Braganca	Portugal
▪ Nils Larsson	Canada
▪ Andrea Moro	Italy
▪ Felipe Pich-Aguilera	Spain
▪ Yehuda Olander	Israel
▪ Judy Huang, Chin-ying	Taiwan

Active working groups

- *Survey of rating tools* (underway, Nils Larsson), to identify issues related to adoption and/or adaptation of imported rating systems;
- *Urban indicators WG* (underway), to identify suitable performance indicators suitable for use in micro-urban areas. Led by Serge Salat of CSTB;
- *Zero Built Environments WG* (underway), a study of state-of-the-art and future developments in areas of zero operating energy, GHG and water, very low life-cycle emissions, and further application to neighbourhood scale. Led by Charles Kibert, U of Florida;
- *Synergy Grids WG* (about to be launched), feasibility of extending Smart Grid concept to include optimisation of water use, DC generation, storage and use, thermal storage and use. Led by Frank Hovorka, Director Sustainability for ICADE);
- *Sustainable Infrastructure WG* (planning stage), exploration of sustainability principles in micro-urban scale infrastructure. Led by Rolf Böhne, NTNU).

Possible systems linked within a Synergy Grid



SB Conferences

SB conferences

- The Green Building Challenge process was launched in 1996 to support international comparisons in the assessment of building performance;
- The GBC (now SBC) process led to conferences that are co-sponsored with CIB and UNEP;
- The first was GBC'98 in Vancouver, followed by SB2000 in Maastricht, Netherlands and SB02 in Oslo;
- The Melbourne SB08 event was held in September 2008;
- Attendance at these events grew from 600 to 2000+;

Regional SB conferences

- We had feedback that our conferences were too focused on developed and northern countries;
- This led us to organize a series of events held in 2004 in four developing regions and in Central/Eastern Europe;
- These followed a similar format and were linked to the subsequent SB05 conference in Tokyo;
- One outcome of all these events was on the development of regional action plans that were tabled at SB05;
- This year, there are ten regional conferences, followed by a global event in Helsinki in 2011.

Summary of SB2010 and SB2011 conferences



as of 12 March, 2010

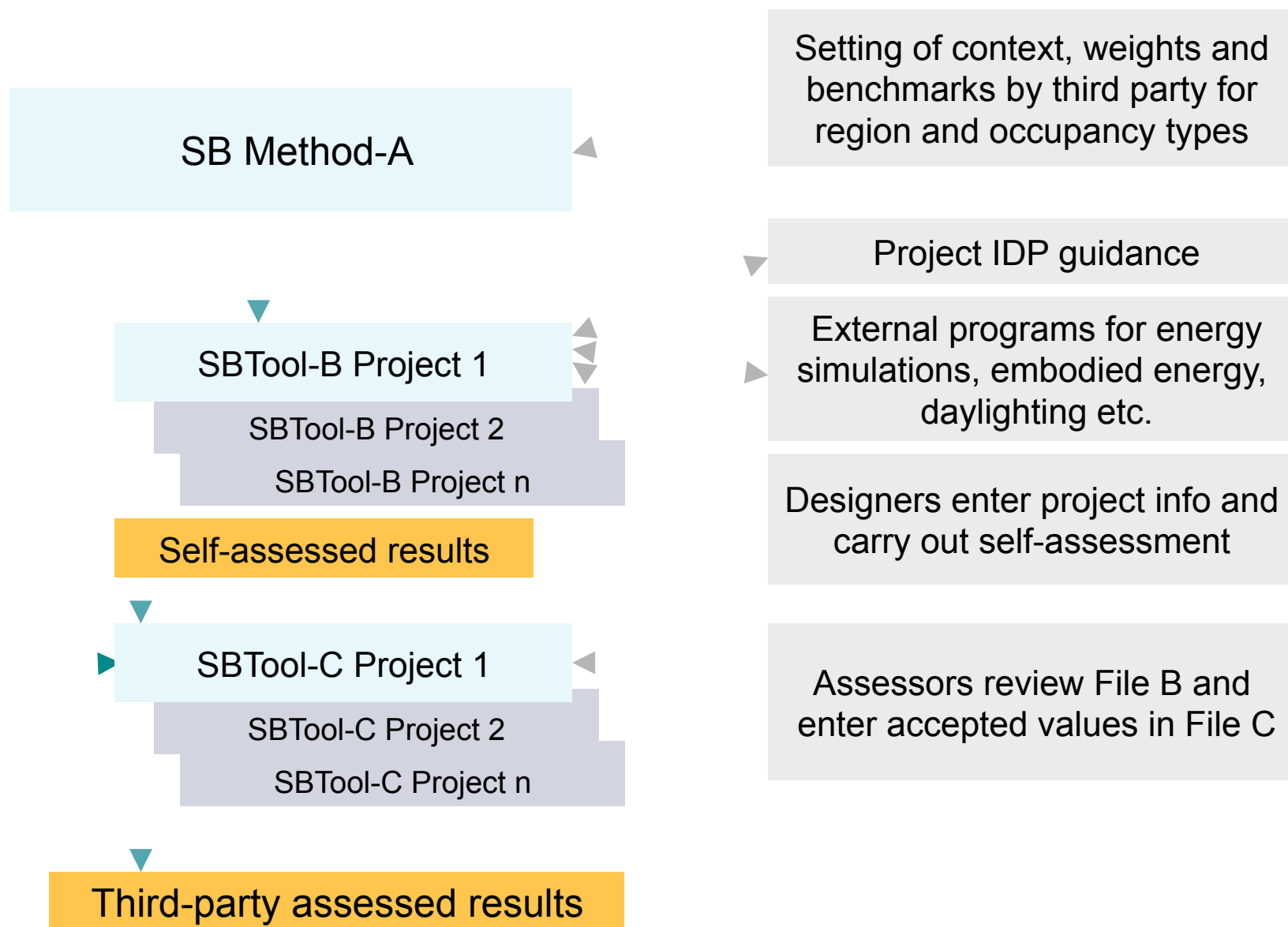
Name	Place	Conference dates	Theme	Website	
Seoul SB10	Seoul, Korea	24-26 February, 2010	<i>Sustainable Building Technology: thinking Earth for Next Generation</i>	www.sb10seoul.org/	
Portugal SB10	Algarve, Portugal	17-19 March, 2010	<i>Sustainable Building Affordable to All</i>	www.iisbeportugal.org/portugalsb10/	
SB10mad	Madrid, Spain	28-30 April, 2010	<i>Revitalization and refurbishment of districts</i>	www.sb10mad.com	
SB10sea	Kuala Lumpur, Malaysia	04-06 May, 2010	<i>Sustainable Building: beyond energy efficiency</i>	www.mgbc.org.my/sb10sea	
SB10	Wellington, New Zealand	26-28 May, 2010	<i>Innovation and transformation</i>	www.sb10.co.nz	
CESB10	Prague, Czech Republic	30 June to 02 July, 2010	<i>Central Europe Towards Sustainable Building</i>	www.cesb.cz	
SB10 Amman	Amman, Jordan	12-14 July, 2010	<i>Sustainable Architecture and Sustainable Building</i>	www.csaar-center.org/conference/saud2010	
SB10 Finland	Espoo, Finland	22-24 September, 2010	<i>Sustainable Community BuildingSMART</i>	www.sb10.fi	
Euregional SB10	Zuyd, The Netherlands	11-13 October, 2010	<i>Towards zero impact buildings and environments</i>	www.SB10.nl	
SB10Brazil	Sao Paolo, Brazil	8-9 November, 2010	<i>Instrumenting change for sustainable building</i>	www.SBinBrazil.org (to check URL availability)	
	World SB11, Helsinki, Finland 18-21 October, 2011 www.sb11.org Abstracts: 22 Oct. 2010	1. World resources 2. Well-being in cities 3. Sustainability in developing countries 4. Sustainable processes and eco-efficient technologies 5. Sustainable business models 6. Social sustainability & ethics		 	

Assessment and benchmarking work -- SBTool

SB Method - Basics

- The SB Method is a generic framework for rating the sustainable performance of buildings and projects. It may also be thought of as a toolkit that assists local organizations to develop SBTool rating systems;
- The system covers a wide range of sustainable building issues, not just green building concerns, but the scope of the system can be modified to be as narrow or as broad as desired, ranging from 70+ criteria to half a dozen;
- SB Method takes into account region-specific and site-specific context factors, and these are used to switch off or reduce certain weights, as well as providing background information for all parties;
- Weighting is at one level and can be partly modified by authorized third parties;
- The system is set up to allow easy insertion of local criteria and/or language;
- The system now includes IDP process in parallel steps;
- It handles all four major phases;
 - ... new and renovation projects;
 - ... up to three occupancy types in a single project;
 - ... provides relative and absolute outputs;

SB Method and Tool System Structure



Active parameters in system: 100				Weightings for occupancy types listed, in Atlantis, Somewhere				Generic		<div>Weight by Issue for Complete version</div> <table><tr><td>A. Site</td><td>13%</td></tr><tr><td>B. Energy and resources</td><td>31%</td></tr><tr><td>C. Environmental loadings</td><td>38%</td></tr><tr><td>D. IEQ</td><td>7%</td></tr><tr><td>E. Service quality</td><td>6%</td></tr><tr><td>F. Socio-economic</td><td>13%</td></tr><tr><td>G. Cultural and perceptual</td><td>13%</td></tr></table>				A. Site	13%	B. Energy and resources	31%	C. Environmental loadings	38%	D. IEQ	7%	E. Service quality	6%	F. Socio-economic	13%	G. Cultural and perceptual	13%
A. Site	13%																										
B. Energy and resources	31%																										
C. Environmental loadings	38%																										
D. IEQ	7%																										
E. Service quality	6%																										
F. Socio-economic	13%																										
G. Cultural and perceptual	13%																										
Select versions with different number of parameters below: Minimum, Basic, Complete, or Developer.				Weights for Criteria are established through the estimates of sustainability impacts. Some of these may be changed to suit various context conditions, or generic building characteristics, such as occupancy type, height etc. These modifiers can be seen in Columns H-J (hidden). Parameters can also be inactivated (Column A), which re-distributes their weights among remaining Criteria. Note that Category weight are the sum of Category weights Default generic weights are by authorized third parties.				Design Phase																			
Col. C: Complete								Weighting of Categories in percent (sum of Criteria scores)		Weighting of Criteria in percent																	
		✓	✓	E5.7	Provision i				0.05%																		
		✓	✓	E5.8	Provision i				0.05%																		
		✓	✓	E5.9	Level of sk				0.05%																		
Parameters active in Issues C = 11				F Social and Economic Aspects				3.5%																			
				F1 Social Aspects				2.0%																			
		✓	✓	F1.1	Construction accident rate.				0.82%																		
◆	◆	◆	◆	F1.2	Access for mobility-impaired persons on site and within the building.				0.55%																		
		✓	✓	F1.3	Access to direct sunlight from living areas of dwelling units.				0.21%																		
		✓	✓	F1.4	Access 1				0.21%																		
			✓	F1.5	Facilities				0.00%																		
			✓	F1.6	Visual privacy from the exterior in principal areas of dwelling units.				0.21%																		
			✓	F1.7	Social utility of primary building function				0.00%																		
				F2 Cost and Economics				1.5%																			
		✓	✓	F2.1	Life-cycle cost.				0.27%																		
		✓	✓	F2.2	Construction cost.				0.10%																		
		✓	✓	F2.3	Operating and maintenance cost.				0.14%																		
◆	◆	◆	◆	F2.4	Affordability of residential rental or cost levels.				0.41%																		
		✓	✓	F2.5	Support for the local economy.				0.31%																		

Select one of four versions here

Criteria turned on or off for various versions

Mandatory for all versions

Weights (percent of total)

Weights inactive in this version (values redistributed to active criteria)

Weighting sheet of File A at summary level

File A

Select one of four versions here

Criteria turned on or off for various versions

Mandatory for all versions

Weights (percent of total)

Weights inactive in this version (values redistributed to active criteria)

Weighting sheet of File A at summary level

File A

SB method weighting

- The system uses a semi-objective weighting system;
- Weights for each parameter are based on degrees of probable intensity of effect, duration and extent, combined with links to key impact indicators.

Score	Extent of potential effect	Score	Intensity of Potential Effect	Score	Duration of potential effect
-------	----------------------------	-------	-------------------------------	-------	------------------------------

Potential effects of Loadings and Qualities

Regional weight	Extent of potential effect	Intensity of Potential Effect	Duration of potential effect
0	0	0	0
1 Much less important	1 Building part or assembly	1 Minor	1 Weeks or less
2 Less important	2 Site / project	2 Moderate	2 Months
3 Same as Default	3 Neighborhood / infrastructure	3 Moderate but irreversible	3 Years
4 More important	4 Urban region / infrastructure	4 Major	4 Decades
5 Much more important	5 Region / nation / global	5 Major and irreversible	5 Centuries

SB Method - Applications

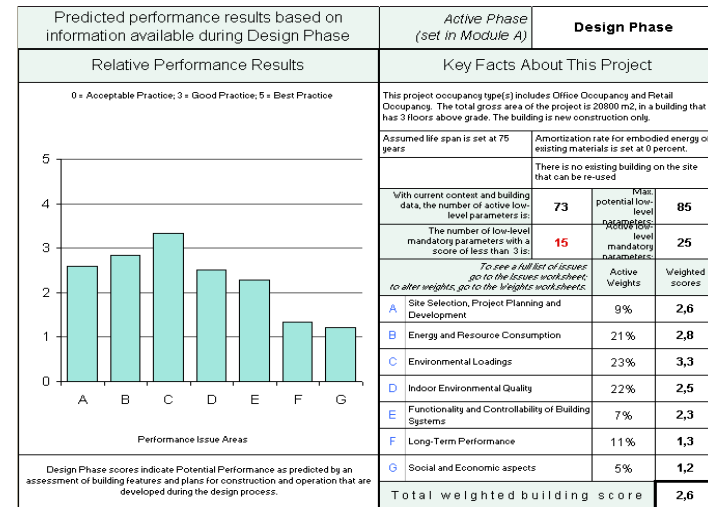
- The SB Method can be used by authorized third parties to establish adapted SBTool versions to establish rating systems to suit their own regions and building types;
- We developed a custom version of SBTool to assess entries in an international competition for an 11 ha. urban expansion of Monaco, 2008;
- The system can also be used by owners and managers of large building portfolios, to express in a very detailed way their own sustainability requirements to their internal staff or during competitions;

SBTool in Italy

- In 2002 ITACA, the *Federal Association of the Italian Regions*, adopted the GBC methodology as basis to develop an institutional assessment system for residential buildings: Protocollo ITACA;
- Main objective of the association is to promote and disseminate the good practices for the environmental sustainability and to develop common policies for the Regions (the environment falls within regional competence).
- The aim of ITACA was to establish an objective set of requirements to define “what is” a green building and to develop a simple assessment method to measure the environmental performance of buildings necessary to improve policies on sustainable building;
- The Green Building Challenge (GBC) method and its software tool (SBTool) was found to give local authorities the ability to adapt the tool to their own conditions and priorities;
- The “Protocollo ITACA” was officially adopted by ITACA in January 2004, and is now the reference rating system of the regional authorities in Italy.

Protocollo ITACA

- As with all implementations of GBTool or SBTool, the assessments are carried out with reference to locally meaningful benchmarks and weights, while results are expressed both as absolute results, and as relative performance using the minimum acceptable benchmark as a reference;



Absolute Performance Results		
	By area	By area & occupancy
1 Total net consumption of primary embodied energy, MJ/m ²	0.1 MJ/m ²	0.1 MJ/m ²
2 Net annual consumption of primary embodied energy, MJ/year	2.1 MJ/year	2.1 MJ/year
3 Net annual consumption of delivered energy for building operations, MJ/year	72 MJ/year	72 MJ/year
4 Net annual consumption of primary non-renewable energy for building operations, MJ/year	68 MJ/year	68 MJ/year
5 Net embodied primary embodied energy and annual operating primary energy, MJ/year	70 MJ/year	70 MJ/year
6 Total renewable energy used for operations, MJ/year	12 MJ/year	12 MJ/year
7 Net annual consumption of potable water for building operations, m ³ /year	0.2 m ³ /year	0.2 m ³ /year
8 Annual use of grey water and wastewater for building operations, m ³ /year	0.1 m ³ /year	0.1 m ³ /year
9 Net annual (GWP) emissions from building operations, kg CO ₂ equivalent per year	10 kg/year	10 kg/year
10 Weight range of temperatures in naturally ventilated primary occupancy areas for more than 90% of occupied hours, deg. C	2.0 deg. C	2.0 deg. C
11 Proportion of gross area of existing structure(s) re-used in the new project, percent	N/A	N/A
12 Proportion of gross area of project provided by re-use of existing structure(s), percent	0 percent	0 percent

- An important factor in the success of the Protocollo ITACA has been the role of iiSBE as an international body overseeing the activities of iiSBE Italia, and the partnership with the CNR and universities;
- Another significant step was the decision to reduce the number of parameters from the potential maximum of 118 to to 65;
- A more compact version, using 25 criteria was developed, and a still smaller version with 12 criteria now exists;

Italy: social housing projects

- One of the most active regional partners has been the Regione Piemonte;
- This region has now launched a program to fund the improvement of the physical, social and environmental quality of urban districts through the refurbishment of buildings, new construction and urban projects;
- With the use of EU funding, the total investment foreseen in the Piemonte region for this program is 700,000,000 Euro, and the housing target is 10,000 flats by 2012;
- Of the total, 56,000,000 Euro has been set aside for contributions to high performance;
- As part of the program, funds have been set aside to provide incentives for high performance design, and the Protocollo ITACA is being used to determine the level of subsidy awarded, up to 12,000 Euro per flat;

Italy: social housing projects

- It will be mandatory to achieve a Protocollo ITACA rating of at least 2.0 for new buildings and 1.0 for renovated buildings.
- Specific funding incentives are:
 - Score of 1.5 to 2.0 - 5,000 Euro
 - Score of 2.0 to 2.5 - 10,000 Euro
 - Score of 2.5 to 3.0 - 10,000 Euro plus bonus score
- iiSBE Italia will certify the performance levels achieved;
- This performance-oriented social housing plan is also being extended to the Regione Marche and Regione Liguria, for an additional total of 200,000,000 Euro.

Contacts & Info

- <http://www.iisbe.org>
- <http://www.sbis.info>
- Andrea Moro, andrea.moro@iisbe.org
- Nils Larsson, larsson@iisbe.org

