Build Green®

STUDIU COMPARATIV: NOI SCHEME DE CERTIFICARE SUSTENABILĂ

București, 24 mai 2016

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CONTEXT

Noile scheme de certificare BREEAM și LEED înlocuiesc standardele vechi în 2016

BREEAM®

BREEAM 2009: 2009 – 2015
BREEAM 2013: 2013 – 2016

BREEAM 2016: Martie 2016

LEED V3: 2009 – 2016

LEED V4: Noiembrie 2016

Principalele schimbări: BREEAM 2016

- Noi tipuri de clădiri: hoteluri & instituții de învățământ
- Focus sporit pe clădirile rezidențiale
- Criterii-cheie:
  - Managementul dezvoltării – planificare și design
  - Performanța energetică - Standardul de referință pentru eficiența energetică înlocuit cu standardele locale, mai stricte (EPBD).
  - Calitatea aerului din interiorul clădirii
  - Reducerea amprentei de carbon a clădirii (Low carbon design)
  - Utilizarea de materiale provenite din surse responsabile
  - Design-ul durabil sau de tip pasiv
  - NOx – criterii aliniate la directiva UE referitoare la design-ul ecologic.
- Scor mai mare pentru implicarea unui consultant autorizat BREEAM AP

Principalele schimbări: LEED V4

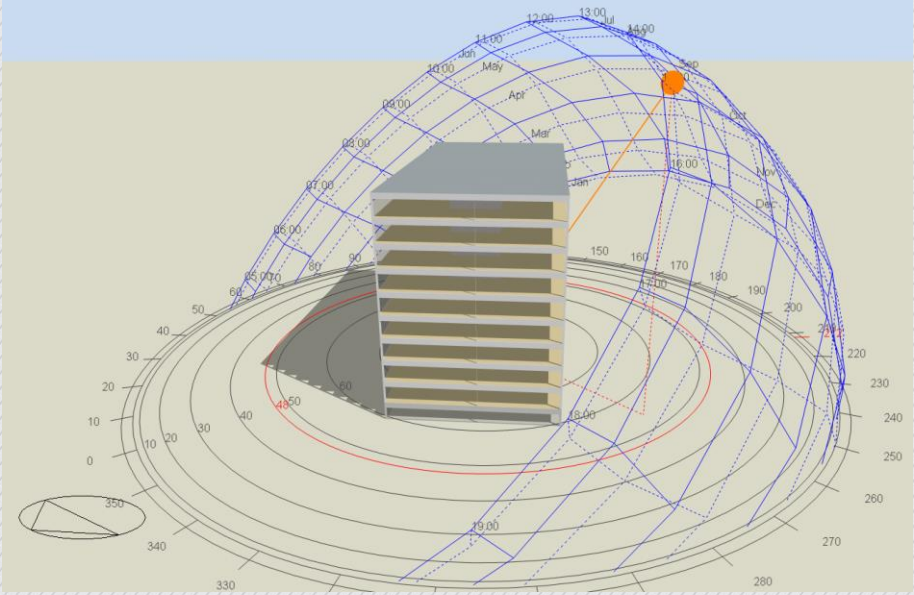
- Criteriile referitoare la produsele utilizate în cadrul proiectului au devenit mai stricte
- Focus pe evaluarea ciclului de viață al produselor și pe declarațiile de mediu
- Numărul condițiilor preliminare, nepunctate suplimentar, a crescut cu 50%
- "Contorizarea energiei la nivelul întregii clădiri" și "Planificarea și gestionarea deșeurilor din construcții și demolări" – criterii preliminare
- Performanța energetică: standardul ASHRAE mai restrictiv

Principalele schimbări: ambele metodologii

- Reguli mai stricte de dezvoltare sustenabilă
- Un proces mai simplu de certificare
- Cele două metodologii devin și mai asemănătoare
- Acustica și modalitățile alternative de transport – preocupări comune
- Cerințele legate de numărul locurilor de parcare și de facilitățile pentru bicicliști au devenit mai stricte
- Focus pe performanța energetică – cerințe mai stricte

STUDIU DE CAZ

Top Sustainable Office Building, București



- Suprafață construită totală: 15.000 m²
- GLA: 12.000 m²
- Număr etaje: 10
- Localizare: nordul Capitalei
- Acces facil la mijloacele de transport în comun
- Standard calitativ ridicat al construcției
- Nivel superior de sustenabilitate

Management

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Commissioning	2	**2**	Sustainable procurement	9+1	**8**	Project Brief and Design	4	**4**
Constructor's Environmental & Social Code of Conduct	2+1	**1**	Responsible construction practices	2+1	**1**	Responsible construction practices	6	**5**
Construction Site Impacts	4+1	**4**	Construction Site impacts	5	**5**	Commissioning and handover	4	**2**
Building User Guide	1	**1**	Stakeholder participation	4	**4**	Aftercare	3	**3**
Life Cycle Cost Analysis	2	**2**	Life cycle cost and service life planning	3	**3**	Life cycle cost and service life planning	4	**4**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
`	*not present*	-	-	Integrative Process	1	**1**
IDP	LEED Accredited Professional	1	**1**	LEED Accredited Professional	1	**1**
SS	Tenant Design and Construction Guidelines	1	**1**	Tenant Design and Construction Guidelines	1	**1**
EA	Fundamental Commissioning of Building Energy Systems		**-**	Fundamental commissioning and verification		
EA	Enhanced commissioning	2	**2**	Enhanced commissioning	6	**6**
SS	Construction activity pollution prevention		**-**	Construction activity pollution prevention		
SS	*not present*			Site assessment	1	**1**

Health & Well-Being

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Access to daylight	1+1	**0**	Visual comfort	3	**2**	Visual comfort	3	**2**
View out	1	**1**						
Glare control	1	**1**						
High frequency lighting	1	**1**						
Internal and external lighting levels	1	**1**						
Lighting zones and controls	1	**1**						
Potential for Natural Ventilation	1	**0**	Indoor Air Quality	4+2	**2**	Indoor Air Quality	2	**1**
Indoor Air Quality	1	**1**						
Volatile Organic Compounds	1	**1**						
Thermal Comfort	2	**2**	Thermal comfort	2	**2**	Thermal comfort	3	**3**
Thermal Zoning	1	**1**						
Microbial Contamination	1	**1**	Water quality	1	**1**	Water quality	1	**1**
Acoustic Performance	1	**1**	Acoustic performance	2	**2**	Acoustic performance	1	**1**
			Safe access	1	**1**	Accessibility	2	**2**
			Hazards	1	**1**	Hazards	1	**1**

Health & Well-Being

	LEED v3			LEED v4		
	Category	Max	Points	Category	Max	Points
IEQ	Minimum IAQ performance		-	Minimum IAQ performance		
IEQ	Environmental Tobacco Smoke (ETS) control		-	Environmental Tobacco Smoke (ETS) control		
IEQ	Outdoor air delivery monitoring	1	**0**	Enhanced IAQ strategies	2	**2**
IEQ	Increased ventilation	1	**0**			
IEQ	Indoor chemical and pollutant source control	1	**1**			
IEQ	Low-emitting materials- adhesive and sealants	1	**1**	Low-emitting materials	3	**2**
IEQ	Low-emitting materials- paints and coatings	1	**1**			
IEQ	Low-emitting materials- flooring systems	1	**1**			
IEQ	Low-emitting materials- composite wood and agrifiber products	1	**1**			
IEQ	Construction IAQ Management plan- during construction	1	**1**	Construction IAQ Management plan	1	**1**
IEQ	Construction IAQ Management plan- before occupancy	0	**0**	IAQ assessment	2	**1**
IEQ	Thermal comfort- design	1	**1**	Thermal comfort	1	**1**
IEQ	Controllability of systems- thermal comfort	1	**1**			
IEQ	Controllability of systems- lighting	1	**0**	Interior lighting	2	**0**
IEQ	Daylight and views- daylight	1	**1**	Daylight	3	**0**
IEQ	Daylight and views- views	1	**1**	Quality views	1	**1**
IEQ	not present	0	**0**	Acoustic performance	1	**1**
IEQ	Thermal comfort- verification	0	**0**	*Category removed*		

Energy

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Energy efficiency	15+2	**11**	Energy efficiency	15 + 5	**10**	Energy efficiency	15+5	**9**
Sub-metering of Substantial Energy Uses	1	**1**	Energy monitoring	2	**2**	Energy monitoring	2	**2**
Sub-metering of High energy Load and Tenancy Areas	1	**1**						
External Lighting	1	**1**	External lighting	1	**1**	External lighting	1	**1**
Low or Zero Carbon Technologies	3+1	**3+1**	LZC technologies	2	**2**	Lowcarbon design	3	**2**
Building fabric performance and avoidance of air infiltration	0	**0**	*Included in Management category*					
Lifts	2	**2**	Energy efficient transportation system	2	**2**	Energy efficient transportation system	3	**3**
			Energy efficient equipment	2	**2**	Issue removed		

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
EA	Minimum energy performance		-	Minimum energy performance		
EA	*not present*			Building-level energy metering		
EA	Optimize energy performance	21	**18**	Optimize energy performance	18	**15**
EA	Measurement and verification	6	**6**	Advanced energy metering	1	**1**
EA	*not present*			Demand response	2	**2**
EA	On-site renewable Management	4	**4**	Renewable energy production	3	**3**
EA	Green power	2	**0**	Green power and carbon offsets	2	**0**

Transport

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Provision of Public Transport	2	**2**	Public transport accessibility | new measure: Accessibility Index	3	**3**	Public transport accessibility	3	**3**
Proximity to amenities	1	**1**	Proximity to amenities	1	**1**	Proximity to amenities	1	**1**
Alternative modes of transport	2 + 1	**2+1**	Alternative modes of transport	2 + 1	**2+1**	Alternative modes of transport	2+1	**2+1**
Pedestrian and Cyclist Safety	1	**0**	Included in Health & Well-Being					
Maximum Car Parking Capacity	2	**2**	Maximum Car Parking Capacity	2	**2**	Maximum Car Parking Capacity	2	**2**
Travel Plan	1	**1**	Travel Plan	1	**1**	Travel Plan	1	**1**
						Home Office	0	**0**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
LT	Alternative transportation- public transportation access	6	**6**	Access to quality transit	6	**6**
LT	Alternative transportation- bicycle storage and changing rooms	2	**1**	Bicycle facilities	1	**1**
LT	Alternative transportation- parking capacity	2	**2**	Reduced parking footprint	1	**1**
LT	Alternative transportation- low-emitting and fuel-efficient vehicles	3	**3**	Green vehicles	1	**1**
LT	Development density and community connectivity	5	**5**	Surrounding density and diverse uses	6	**6**

Water

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Water consumption	3	**2**	Water consumption	5+1	**2**	Water consumption	5+1	**2**
Water Meter	1+1	**1**	Water monitoring	1	**1**	Water monitoring	1	**1**
Major Leak Detection	1	**1**	Water leak detection and prevention	2	**2**	Water leak detection and prevention	2	**2**
Sanitary Supply Shut off	1	**1**						
Irrigation system	1	**1**	Water efficient equipment	1	**1**	Water efficient equipment	1	**1**
Sustainable on-site water treatment	2	**0**	Issue removed					

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
WE	*Prerequisite not present in the LEED v3*			Outdoor water use reduction		
WE	Water use reduction			Indoor water use reduction		
WE	*Prerequisite not present in the LEED v3*			Building-level water metering		
WE	Water efficient landscaping	4	**4**	Outdoor water use reduction	2	**1**
WE	Water use reduction	4	**2**	Indoor water use reduction	6	**3**
WE	*not present*			Cooling tower water use	2	**1**
WE	*not present*			Water metering	1	**1**
WE	Innovative wastewater technologies	2	**0**	*category removed*		

Materials

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Material Specification (Major Building Elements)	4	**2**	Life cycle impacts	6+1	**6+1**	Life cycle impacts	7+1	**6**
Hard Landscaping and Boundary Protection	1	**1**						
Re-Use of Façade	1	**0**	Issue removed					
Re-Use of structure	1	**0**	Issue removed					
Responsible Sourcing of Materials	3 + 1	**1**	Responsible sourcing of materials	3+1	**1**	Responsible sourcing of construction products	4+1	**1**
Insulation	2	**2**	Insulation	1	**1**	Issue removed		
Designing for Robustness	1	**1**	Designing for Robustness	1	**1**	Designing for Durability and Resilience	1	**1**
						Material Efficiency	1	**1**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
MR	Building reuse- maintain existing walls, floors and roof	5	**0**	Building life-cycle impact reduction	6	**3**
MR	Building reuse- maintain interior non-structural element	0	**0**			
MR	Material reuse	1	**1**			
MR	*not present*			Building product disclosure and optimization- environmental product declarations	2	**2**
MR	Recycled content	2	**2**	Building product disclosure and optimization- sourcing of raw materials	2	**0**
MR	Rapidly renewable materials	1	**0**			
MR	Certified wood	1	**1**			
MR	*not present*			Building product disclosure and optimization- material ingredients	2	**0**
MR	Regionals materials	2	**2**	*category removed*		

Waste

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Construction Site Waste Management	3 + 1	**2**	Construction waste management	3 + 1	**2**	Construction waste management	3+1	**2**
Recycled Aggregates	1	**0**	Recycled Aggregates	1 + 1	**0**	Recycled Aggregates	1+1	**0**
Recyclable Waste Storage	1	**1**	Operational waste	1	**1**	Operational waste	1	**1**
Composting	1	**0**						
Floor Finishes	1	**1**	Speculative floor and ceiling finishes	1	**1**	Speculative finishes	1	**1**
						Adaptation to Climate Change	1	**0**
						Functional Adaptability	1	**1**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
MR	Storage and collection of recyclables		-	Storage and collection of recyclables		
MR	*not present*		-	Construction and demolition waste Management planning		
MR	Construction waste Management	2	**2**	Construction and demolition waste Management	2	**2**

Land Use and Ecology

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Reuse of Land	1	**1**	Site selection	3	**3**	Site selection	3	**3**
Contaminated Land	1	**1**						
Ecological Value of Site and protection of Ecological Features	1	**1**	Ecological Value of Site and protection of Ecological Features	2	**2**	Ecological Value of Site and protection of Ecological Features	2	**2**
Mitigating Ecological impact	5	**4**	Enhancing site ecology	3	**3**	Enhancing site ecology	3	**3**
Long Term impact of Biodiversity	2	**2**	Long term impact on biodiversity	2	**2**	Long term impact on biodiversity	2	**2**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
SS	Site development- protect or restore habitat	1	**1**	Site development- protect or restore habitat	2	**2**
SS	Site development- maximize open space	1	**1**	Open space	1	**1**
SS	Storm water design- quantity control	1	**1**	Rainwater Management	3	**1**
SS	Storm water design- quality control	1	**0**			
LT	not present			*LEED for Neighbourhood Development location*	*20*	*N/A*
LT	Site selection	1	**1**	Sensitive land protection	2	**2**
LT	Brownfield redevelopment	1	**1**	High priority site	3	**3**
SS	Heat island effect- non roof	1	**1**	Heat island reduction	2	**1**
SS	Heat island effect- roof	1	**1**			

Pollution

BREEAM 2009			BREEAM 2013			BREEAM 2016		
Issue	**Max**	**Credits**	**Issue**	**Max**	**Credits**	**Issue**	**Max**	**Credits**
Refrigerant GWP- Building Services	1	**0**	Impact of refrigerants	3	**1**	Impact of refrigerants	4	**3**
Preventing Refrigerant Leaks	2	**2**						
NOx emissions from heating source	3	**2**	NOx emissions	3	**2**	NOx emissions	2	**1**
Flood Risk	3	**2**	Surface water run-off	5	**2**	Surface water run-off	5	**3**
Minimising Watercourse Pollution	1	**1**						
Reduction of Night Time Light Pollution	1	**1**	Reduction of Night Time Light Pollution	1	**1**	Reduction of Night Time Light Pollution	1	**1**
Noise Attenuation	1	**1**	Noise Attenuation	1	**1**	Reduction of Noise Pollution	1	**1**

	LEED v3			LEED v4		
	Category	**Max**	**Points**	**Category**	**Max**	**Points**
SS	Light pollution reduction	1	**1**	Light pollution reduction	1	**1**
EA	Fundamental Refrigerant Management		**-**	Fundamental refrigerant Management		
EA	Enhanced refrigerant Management	2	**2**	Enhanced refrigerant Management	1	**1**

CONCLUZII

Nivel de certificare obținut

Clădire de top

Metodologie	BREEAM 2009	BREEAM 2013	BREEAM 2016	LEED v3	LEED v4
Nivel certificare	Excellent	Excellent	Excellent	Platinum	Gold
Scor obtinut	86 credite / 81.02%	98 credite / 80.14%	93 credite /78.29%	86 puncte	79 puncte

Clădire standard

Metodologie	BREEAM 2009	BREEAM 2013	BREEAM 2016	LEED v3	LEED v4
Nivel certificare	Excellent	Very Good	Very Good	Gold	Gold
Scor obtinut	72 credite / 67.63%	89 credite / 62.34%	83 credite /58.91%	72 puncte	62 puncte

Build Green®

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MULȚUMESC!