

International Green Building Certifications: Opportunities, Challenges, Reasons, Costs

- What buildings shall be certified and reasons why?
- Comparison of the most widespread international certifications in Europe - LEED, BREEAM and HQE
- How does preparation for the building's certification influence its construction costs?
- What is the experience with international certification in the Czech Republic? (RPG, ČSOB)
- What are international trends?

13:15 – 13:45 ČSOB building guided tour



Mezinárodní certifikace zelených budov: Příležitosti, výzvy, důvody a náklady

- Jaké budovy certifikovat a důvody proč?
- Porovnání nejrozšířenějších mezinárodních certifikací v Evropě - LEED, BREEAM a HQE
- Jak může příprava na certifikaci ovlivnit náklady stavby?
- Jaké jsou praktické zkušenosti s mezinárodní certifikací v ČR? (RPG, ČSOB)
- Jaké jsou trendy v zahraničí?

13:15 – 13:45 Prohlídka budovy ČSOB



Speakers

Aktivní účastníci



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International Green Building Certifications: WHERE TO GO? Mezinárodní certifikace zelených budov: KTERÝM SMĚREM JÍT?

Anthony Spicer
Bovis Lend Lease Czech and Slovak Republics



Real Estate Sector Impacts Globally

Globální dopady realitního sektoru



Buildings are responsible for
40%
of world's global greenhouse gas emissions.

Buildings are responsible for
40%
of solid waste generation globally.

Buildings use
12%
of the world's water.

Air quality in buildings typically contains up to
5x (and at times greater than 100)
more pollutants than outdoor air.

Buildings utilize
1/3 of
the world's resources.

Benefits of Green Buildings

Přínosy zelených budov



Environmental Benefits

- Reduce impact on natural resource consumption

Economic Benefits

- Reduce running costs
improve profit

Health and Safety Benefits

- Enhance occupant comfort and health

Community Benefits

- Minimize strain on local infrastructure and improve quality of life

Ekologické přínosy

- Snížení spotřeby přírodních zdrojů

Ekonomické přínosy

- Snížení provozních nákladů, zvýšení zisku

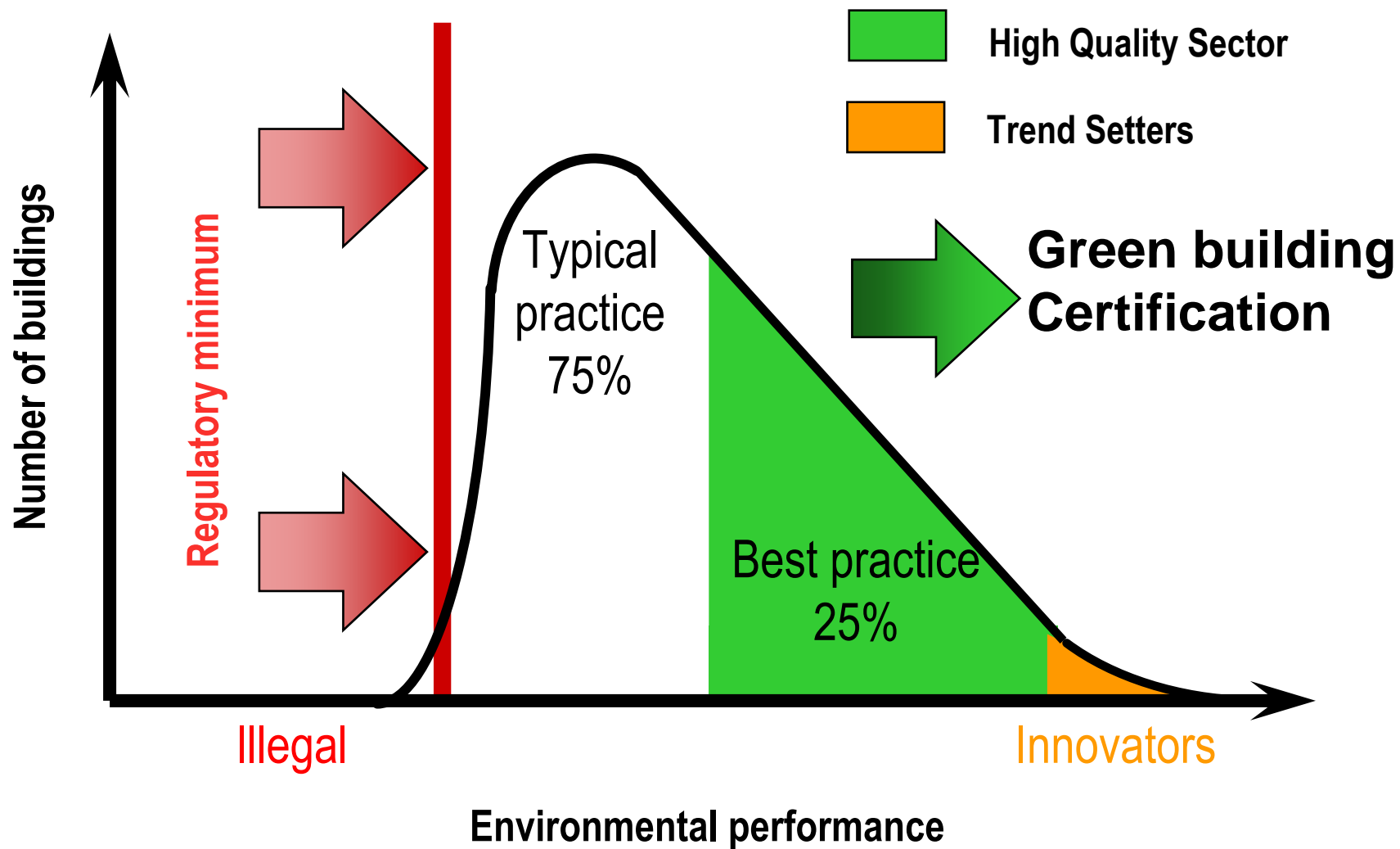
Zdraví a bezpečnost

- Zlepšení komfortu uživatelů a jejich zdraví

Společnost

- Minimalizace dopadů na místní infrastrukturu a zlepšení kvality života

Green Building Markets Zelené budovy na trhu



Green Building Rating Systems: Worldwide

Systemy hodnocení zelených budov na světě



Prominent Certification in Europe
Nejvýznamější certifikace v Evropě



LEED - Leadership in Energy and Environmental Design




- **1994, USA**
- **Green Building Council**
- **69 credits distributed between 6 areas:**
 - Sustainable Sites (20%)
 - Water Efficiency (7%)
 - Energy and Atmosphere (25%)
 - Materials and Resources (19%)
 - Indoor Environmental Quality (22%)
 - Innovation & Design (7%)
- **Levels:** Certified, Silver, Gold, Platinum
- **1,283 buildings certified**

- **1994, USA**
- **Green Building Council**
- **69 kreditů udělováno v 6 oblastech:**
 - Udržitelnost místa (20%)
 - Hospodaření s vodou (7%)
 - Energie a ovzduší (25%)
 - Materiály a zdroje (19%)
 - Kvalita vnitřního prostředí (22%)
 - Inovace a design (7%)
- **Hodnocení:** certifikována, stříbrná, zlatá, platinová
- **1 283 certifikovaných budov**

BREEAM - Building Research Establishment Environmental Assessment Method



- 1990, United Kingdom, 
- Building Research Establishment (BRE)
- 100 credits are distributed between 7 areas:
 - Management (15%)
 - Health & Wellbeing (15%)
 - Energy & Transport (25%)
 - Water (5%)
 - Materials (10%)
 - Land Use & Ecology (15%)
 - Pollution (15%)
- **Levels:** Pass, Good, Very Good, Excellent
- **1,358 buildings certified**

- 1990, Velká Británie
- Building Research Establishment (BRE)
- 100 kreditů udělováno v 7 oblastech:
 - Management (15%)
 - Zdraví a duševní pohoda (15%)
 - Využívání energií a doprava (25%)
 - Hospodaření s vodou (5%)
 - Materiály (10%)
 - Využití půdy a ekologie (15%)
 - Znečišťování ovzduší (15%)
- **Úroveň:** vyhověla, dobrá, velmi dobrá, výborná
- **1 358 certifikovaných budov**

HQE - Haute Qualité Environnementale (High Environmental Quality)

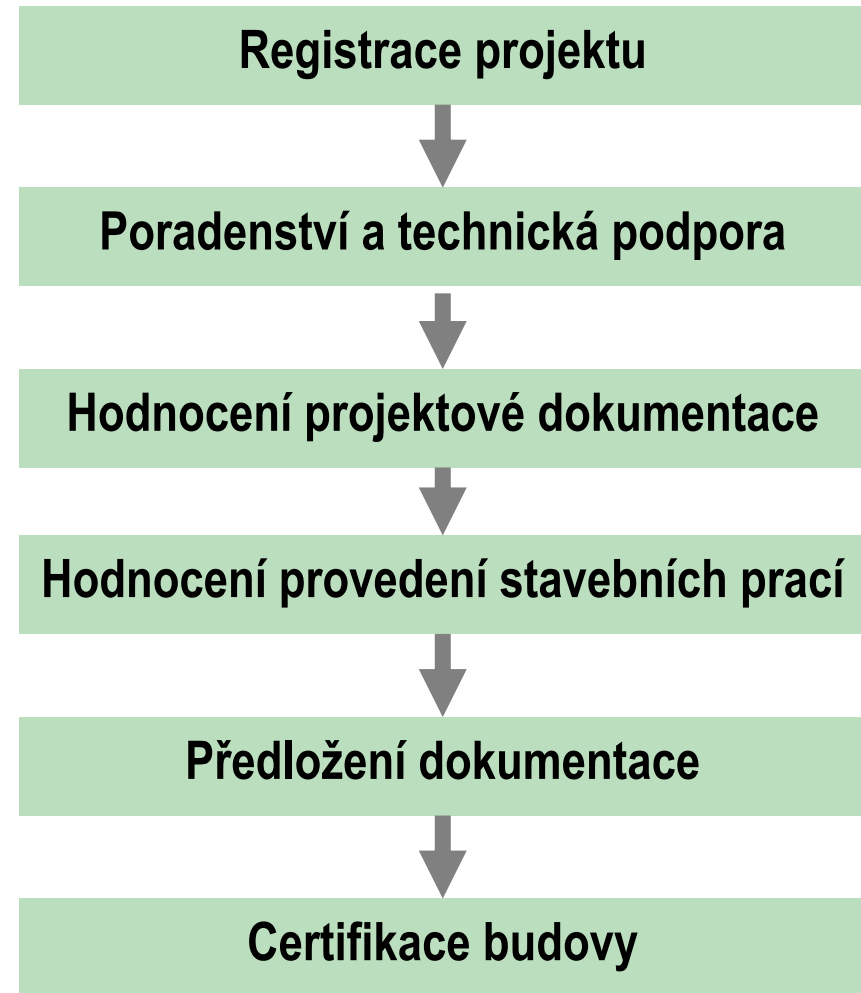
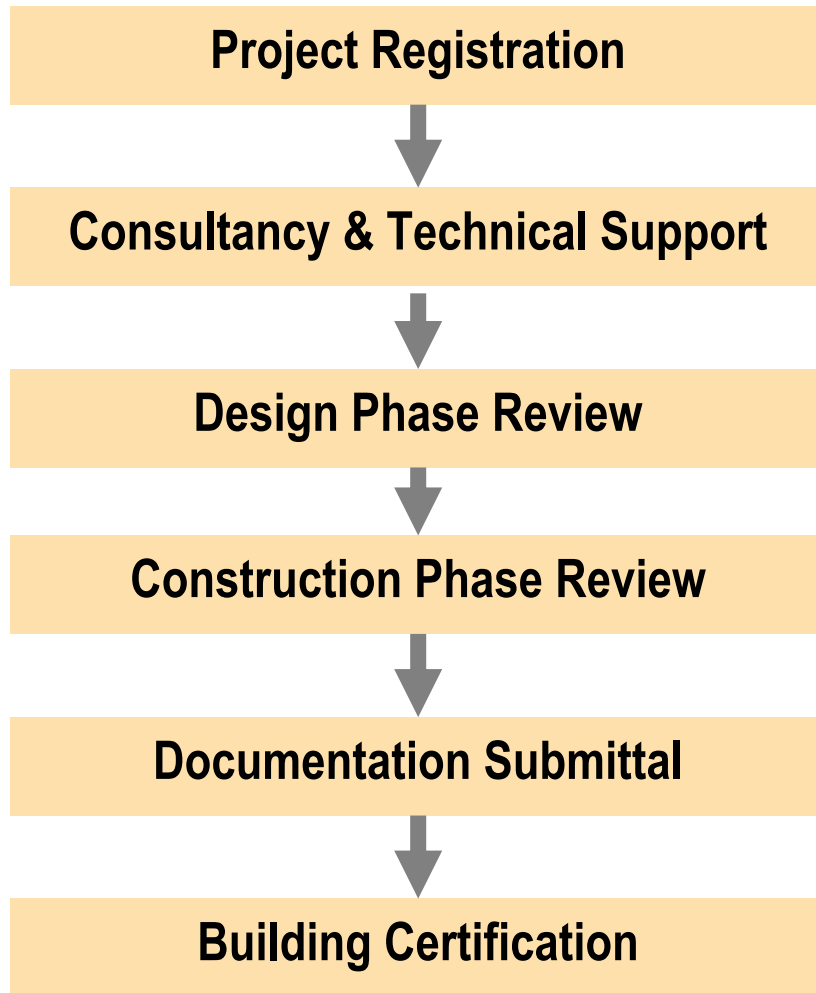


- **1996, France**
- **HQE Association**
- **Considers 2 aspects:**
 - Management of the building
 - Environmental quality of the building
- **14 issues in 4 categories**
 - Eco-construction
 - Eco-management
 - Comfort of users
 - Health of users
- **Levels:** Basic, Good, Very good
- **192 buildings certified**

- **1996, Francie**
- **HQE Association**
- **Hodnotí 2 aspekty:**
 - Management budovy
 - Kvalitu budovy z hlediska životního prostředí
- **14 bodů ve 4 kategoriích**
 - Eco-výstavba
 - Eco-management
 - Komfort uživatelů
 - Zdraví uživatelů
- **Úroveň:** základní, dobrá, velmi dobrá
- **192 certifikovaných budov**

Certification Process in General

Proces certifikace obecně



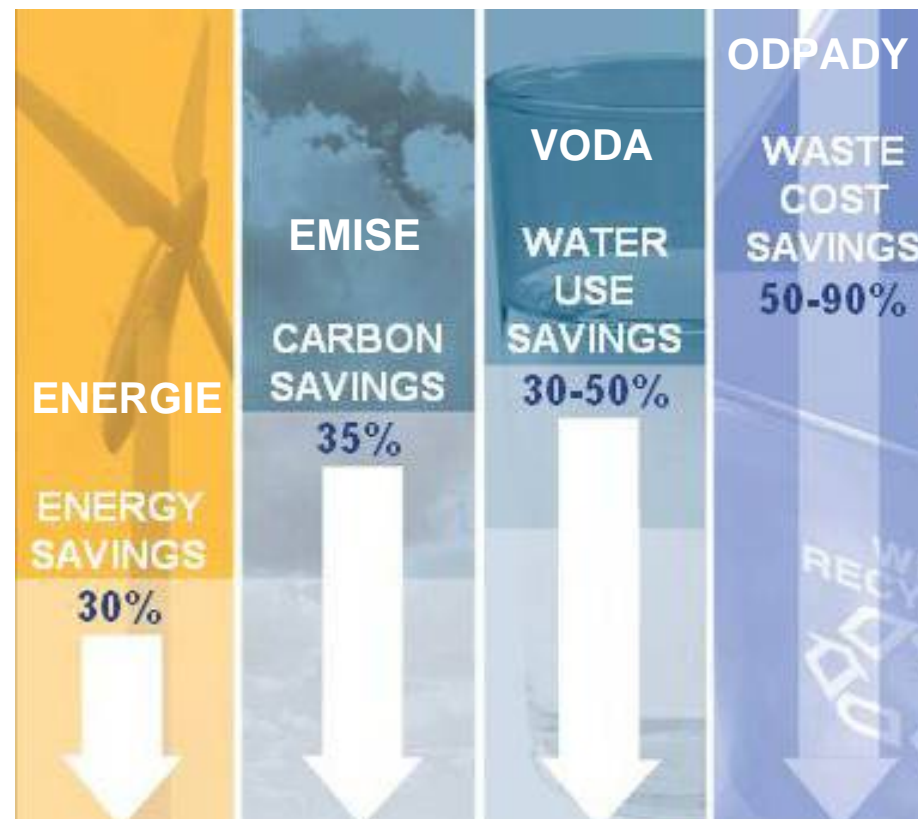
Perceived advantages of building green

8-9%	decrease in operating costs
7.5%	increase in building values
6.6%	improvement in ROI
3.5%	increase in occupancy
3%	revenue increase

Pozorovatelné přínosy zelených budov

8-9%	snížení provozních nákladů
7.5%	zvýšení hodnoty budovy
6.6%	zlepšení návratnosti investic
3.5%	zvýšení obsazenosti
3%	zvýšení výnosů

Average savings of Green buildings Průměrné úspory zelených budov



Example of Certification Costs – LEED

Příklad výše nákladů na certifikaci - LEED



Basic Costs

- Registrations and certifications costs
- Design & Engineering
- Pre-requisites
- Certification Consultancy

Added Costs

- Level of certification
- Credit costs

Základní náklady

- Náklady na registraci a certifikaci projektu
- Projekční a inženýrské služby
- Povinné body
- Poradenství

Přidané náklady

- Stupeň certifikace
- Náklady na dosažení jednotlivých kreditů

Conventional Building Costs Náklady na běžnou budovu (100%)

Additional Costs Dodatečné náklady



These costs will vary depending on the size and the current project phase.

Tyto náklady závisí na velikosti projektu a fázi, ve které se nalézá.

Thank you for your attention.
Děkuji za pozornost.

Anthony E. Spicer
Bovis Lend Lease Czech & Slovak Republics

Project Stages Covered by Rating Systems

Pokrytí fází projektů jednotlivými certifikacemi



Versions of rating systems available for various stages of the property lifecycle						
Rating system	Pre-Design / Planning / Site Selection	Design / Procurement / Construction	Core and Shell	Post Construction review	Tenant Fit-Out / Refurbishment	Existing Building – Management / Operations / Maintenance
BREEAM		●		●	●	●
LEED		●	●	●	●	●
Green Star		●		●	●	(In pilot stage)
HQE		●				(In pilot stage)
CASBEE	●	●			●	●
HK BEAM		●				●
ABGR (NABERS)		●				●
Green Globes		●			●	●

International Trends – LEED registered projects

Mezinárodní trendy – LEED registrované budovy



1. Canada:	119	11.Chile:	5	1 registered project: Hong Kong, Dominican Republic, Oman, Indonesia, New Zeland, Bahrain, Trinidad & Tobago, Philipines, Antigua, Netherlands, Argentina, Guatemala, Portugal, Bulgaria, Vietnam, Germany, Turkey, Poland
2. India:	45	12.Thailand:	5	
3. China:	44	13.Sri Lanka:	4	
4. UAE:	26	14.Taiwan:	3	
5. Brazil:	25	15.Israel:	3	
6. South Korea:	23	16. UK:	2	
7. Mexico:	10	17.Singapore:	2	
8. Puerto Rico:	8	18.Czech Republic:	2	
9. Spain:	7	19.Bahamas:	2	
10.Italy:	6	20.Panama:	2	



LEED Certified & Registered Projects

Certifikované a registrované projekty v systému LEED



Palm Jumeirah, Dubai, UAE



O2 Telefonica, Madrid, Spain



Sydney Olympic Village - 2000

Olympic Village, London - 2012



2012 Olympics Striving to be the greenest games ever



International Trends - BREEAM Rated Projects



- International Council of Shopping Centres has selected BREEAM as their pan-European standard
- Developing individual International Standards for Europe and Middle East

HQE Certified Projects

Certifikované projekty v systému HQE



Hospitals/ Nemocnice



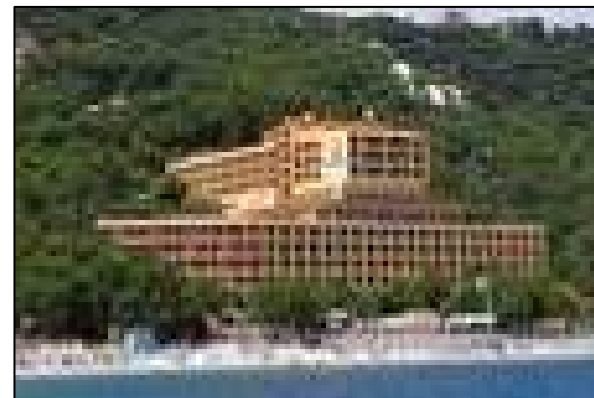
Commercial Offices/ Administrativní výstavba



Logistics Buildings/ Logistická centra



Hotels



Regulatory Trends

Legislativní trendy



PRŮKAZ ENERGETICKÉ NÁROČNOSTI BUDOVY

Typ budovy, míštní označení Adresa budovy Celková podlahová plocha:	Hodnocení budovy			
	stávající stav	po realizaci doporučení		
Měrná vypočtená roční spotřeba energie v kWh/m ² /rok	XY	XY		
Celková vypočtená roční dodaná energie v GJ	XY	XY		
Podíl dodané energie připadající na:				
Vytápění	Chlazení	Větrání	Teplá voda	Osvětlení
%	%	%	%	%
Doba platnosti průkazu				
Průkaz vypracoval		Jméno a příjmení Osvědčení č.		

Stavební povolení dostanou pouze projekty, které získají ocenění A až C.

Czech Republic

- Energy Performance Certificate from 1.1.2009
 - New build with floor area over 50 sqm
 - Refurbishments with floor area above 1000 sqm
 - Buildings for renting and sale

Česká republika

- Průkaz energetické náročnosti budovy 1.1.2009
 - Nové objekty nad 50m² podlahové plochy
 - Rekonstrukce nad 1000 m² podlahové plochy
 - Budovy určené k pronájmu a prodeji

			Total Project Score	Possible Points	69
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Certified 26 to 32 points **Silver** 33 to 38 points **Gold** 39 to 51 points **Platinum** 52 or more points

			Sustainable Sites	Possible Points	14
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Y	?	N			
Y			Prereq 1 Erosion & Sedimentation Control		
			Credit 1 Site Selection	1	
			Credit 2 Urban Redevelopment	1	
			Credit 3 Brownfield Redevelopment	1	
			Credit 4.1 Alternative Transportation , Public Transportation Access	1	
			Credit 4.2 Alternative Transportation , Bicycle Storage & Changing Rooms	1	
			Credit 4.3 Alternative Transportation , Alternative Fuel Refueling Stations	1	
			Credit 4.4 Alternative Transportation , Parking Capacity	1	
			Credit 5.1 Reduced Site Disturbance , Protect or Restore Open Space	1	
			Credit 5.2 Reduced Site Disturbance , Development Footprint	1	
			Credit 6.1 Stormwater Management , Rate and Quantity	1	
			Credit 6.2 Stormwater Management , Treatment	1	
			Credit 7.1 Landscape & Exterior Design to Reduce Heat Islands , No	1	
			Credit 7.2 Landscape & Exterior Design to Reduce Heat Islands , R	1	
			Credit 8 Light Pollution Reduction	1	

			Materials & Resources	Possible Points	13
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Y	?	N			
Y			Prereq 1 Storage & Collection of Recyclables		
			Credit 1.1 Building Reuse , Maintain 75% of Existing Shell	1	
			Credit 1.2 Building Reuse , Maintain 100% of Existing Shell	1	
			Credit 1.3 Building Reuse , Maintain 100% Shell & 50% Non-Shell	1	
			Credit 2.1 Construction Waste Management , Divert 50%	1	
			Credit 2.2 Construction Waste Management , Divert 75%	1	
			Credit 3.1 Resource Reuse , Specify 5%	1	
			Credit 3.2 Resource Reuse , Specify 10%	1	
			Credit 4.1 Recycled Content , Specify 25%	1	
			Credit 4.2 Recycled Content , Specify 50%	1	
			Credit 5.1 Local/Regional Materials , 20% Manufactured Locally	1	
			Credit 5.2 Local/Regional Materials , of 20% Above, 50% Harvested Locally	1	
			Credit 6 Rapidly Renewable Materials	1	
			Credit 7 Certified Wood	1	

			Water Efficiency	Possible Points	5
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Y	?	N			
			Credit 1.1 Water Efficient Landscaping , Reduce by 50%	1	
			Credit 1.2 Water Efficient Landscaping , No Potable Use or No Irrigation	1	
			Credit 2 Innovative Wastewater Technologies	1	
			Credit 3.1 Water Use Reduction , 20% Reduction	1	
			Credit 3.2 Water Use Reduction , 30% Reduction	1	

			Indoor Environmental Quality	Possible Points	15
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Y	?	N			
Y			Prereq 1 Minimum IAQ Performance		
Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control		
			Credit 1 Carbon Dioxide (CO₂) Monitoring	1	
			Credit 2 Increase Ventilation Effectiveness	1	
			Credit 3.1 Construction IAQ Management Plan , During Construction	1	
			Credit 3.2 Construction IAQ Management Plan , Before Occupancy	1	
			Credit 4.1 Low-Emitting Materials , Adhesives & Sealants	1	
			Credit 4.2 Low-Emitting Materials , Paints	1	
			Credit 4.3 Low-Emitting Materials , Carpet	1	
			Credit 4.4 Low-Emitting Materials , Composite Wood	1	
			Credit 5 Indoor Chemical & Pollutant Source Control	1	
			Credit 6.1 Controllability of Systems , Perimeter	1	
			Credit 6.2 Controllability of Systems , Non-Perimeter	1	
			Credit 7.1 Thermal Comfort , Comply with ASHRAE 55-1992	1	
			Credit 7.2 Thermal Comfort , Permanent Monitoring System	1	
			Credit 8.1 Daylight & Views , Daylight 75% of Spaces	1	
			Credit 8.2 Daylight & Views , Views for 90% of Spaces	1	

			Energy & Atmosphere	Possible Points	17
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Y	?	N			
Y			Prereq 1 Fundamental Building Systems Commissioning		
Y			Prereq 2 Minimum Energy Performance		
Y			Prereq 3 CFC Reduction in HVAC&R Equipment		
			Credit 1.1 Optimize Energy Performance , 20% New / 10% Existing	2	
			Credit 1.2 Optimize Energy Performance , 30% New / 20% Existing	2	
			Credit 1.3 Optimize Energy Performance , 40% New / 30% Existing	2	
			Credit 1.4 Optimize Energy Performance , 50% New / 40% Existing	2	
			Credit 1.5 Optimize Energy Performance , 60% New / 50% Existing	2	
			Credit 2.1 Renewable Energy , 5%	1	
			Credit 2.2 Renewable Energy , 10%	1	
			Credit 2.3 Renewable Energy , 20%	1	
			Credit 3 Additional Commissioning	1	
			Credit 4 Green Building	1	

			Innovation & Design Process	Possible Points	5
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Y	?	N			
			Credit 1.1 Innovation in Design : Specific Title	1	
			Credit 1.2 Innovation in Design : Specific Title	1	

LEED – Registration & Certification Fee Summary



LEED REGISTRATION & CERTIFICATION FEE SUMMARY*

As of November 15, 2005, for LEED-NC, LEED-CI, LEED-CS, & LEED-EB

Registration Fees

Charges	Fixed Rate
Members	\$450.00
Non-Members	\$600.00

Note: All fees are subject to change. Sorry, no refunds.

Certification Fees

	Less than 50,000 Square Feet	50,000 - 500,000 Square Feet	More than 500,000 Square Feet
LEED-NC, LEED-CI, & LEED-CS	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Design Review			
Members	\$1,250.00	\$0.025/Square Ft.	\$12,500.00
Non-Members	\$1,500.00	\$0.03/Square Ft.	\$15,000.00
Construction Review			
Members	\$500.00	\$0.01/Square Ft.	\$5,000.00
Non-Members	\$750.00	\$0.015/Square Ft.	\$7,500.00
Combined Design & Construction Review			
Members	\$1,750.00	\$0.035/Square Ft.	\$17,500.00
Non-Members	\$2,250.00	\$0.045/Square Ft.	\$22,500.00

- Fee based on Project size
 - Minimum, \$/SF, and Maximum
 - Reduced rate for members

- Platinum Projects will receive rebate on certification fees

Costing BREEAM

