Building Labelling Systems and Principles

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History of Green Architecture

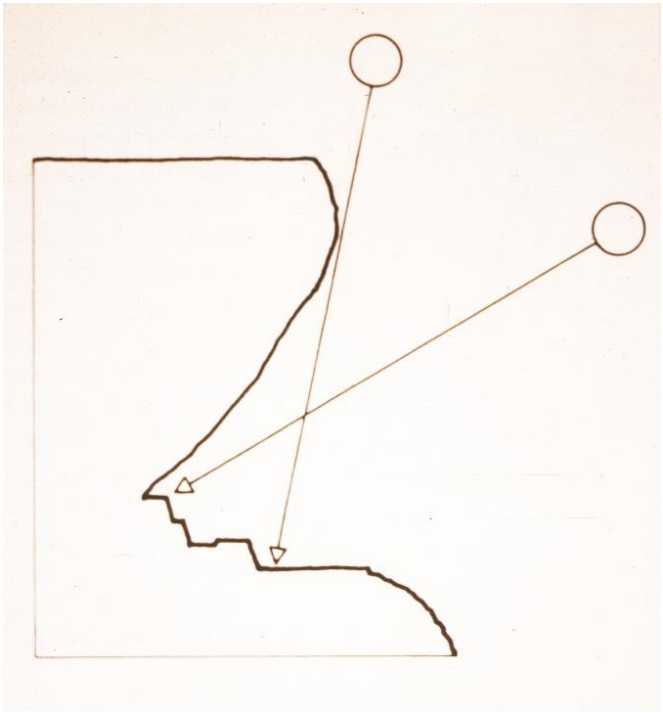
Green architectural design may be a relatively new concept, but the first green homes were constructed thousands of years ago. The U.S. Anasazi Indians created apartment-style green homes as early as 700 A.D.

The Anasazi Indian tribe of the Southwest built whole villages so the houses all received solar heat in the winter to cut down on wood usage; besides collection and use of rainwater for irrigation and the use of natural, non-toxic materials such as stone and wood.

The modern day history of green building movement came from the need for more energy efficient and environmentally friendly construction practices. When oil prices started to increase in the seventies it spurred research to improve energy efficiency.

Cliff Palace

Mesa Verde, Colorado



Farm houses, Estonia


LEED NC GOLD 2006
U.S. GREEN BUILDING COUNCIL
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN
MASONRY AND CERAMIC TILE INSTITUTE OF OREGON
2007 HAMMURABI AWARD
TO
PORTLAND STATE UNIVERSITY
AWARD OF EXCELLENCE FOR USE OF MASONRY
PORTLAND STATE UNIVERSITY
NORTHWEST CENTER FOR ENGINEERING, SCIENCE AND TECHNOLOGY

Building Labelling Systems

www.wikipedia.org

- Australia: Nabers [8] / Green Star [9]
- Brazil: AQUA [10] / LEED Brasil [11]
- Canada: LEED Canada [12] / Green Globes [13]
- China: GBAS [14]
- Finland: PromisE [15]
- France: HQE [16]
- Germany: DGNB [17] / CEPHEUS [18]
- Hong Kong: HKBEAM [19]
- India: Indian Green Building Council (IGBC)[20] / GRIHA [21]
- Indonesia: Green Buildng Council Indonesia (GBCI)[22] / Greenship [23]
- Italy: Protocollo Itaca [24] / Green Building Counsil Italia [25]
- Japan: CASBEE [26]
- Korea: KGBC [27]
- Malaysia: GBI Malaysia [28]
- Mexico: LEED Mexico [29]
- Netherlands: BREEAM Netherlands [30]
- New Zealand: Green Star NZ [31]
- Philippines: BERDE [32] / Philippine Green Building Council [33]
- Portugal: Lider A [34]
- Republic of China(Taiwan):Green Building Label [35]
- Singapore: Green Mark [36]
- South Africa: Green Star SA [37]
- Spain: VERDE
- Switzerland: Minergie [38]
- United States: LEED [39] / Living Building Challenge [40] / Green Globes [41]
- United Kingdom: BREEAM [44]
- United Arab Emirates: Estidama [45]
- IAPGSA Pakistan Institute of Architecture Pakistan Green Sustainable Architecture
- Jordan: EDAMA [46]

More labelling systems to come soon..... Belgium, Ireland, Spain, Latvia, Estonia, Turkey, Norway, Sweden, Russia, Poland and Bulgaria

BREEAM (Building Research Establishment Environmental Assessment Method)
Launched in 1990 in Great Britain. About 150 000 buildings are certified (about 1400 located outside UK) and over half a million are registered with BREEAM. (April 2011 breeam.org). BREEAM certification is mandatory for all new housing projects in the UK

LEED (Leadership in Energy and Environmental Design, Green Building Rating System)
Launched in 1998 in USA. About 5000 buildings are certified and about 50 000 are registered with LEED (April 2011 usgbc.org).

GREEN STAR
Launched in 2002 in Australia. About 150 buildings are certified and about 500 are registered with Green Star (April 2011 gbca.org.au/)

CASBEE (Comprehensive Assessment System for Building Environmental Efficiency)
Launched in 2002 in Japan. About 100 buildings are certified and about 2000 are registered with CASBEE (ibec.or.jp/)

HQE (A legitimate and demanding approach for sustainable construction and building)
Launched in 2005 in France. About 400 buildings are certified with HQE (certivea.fr)

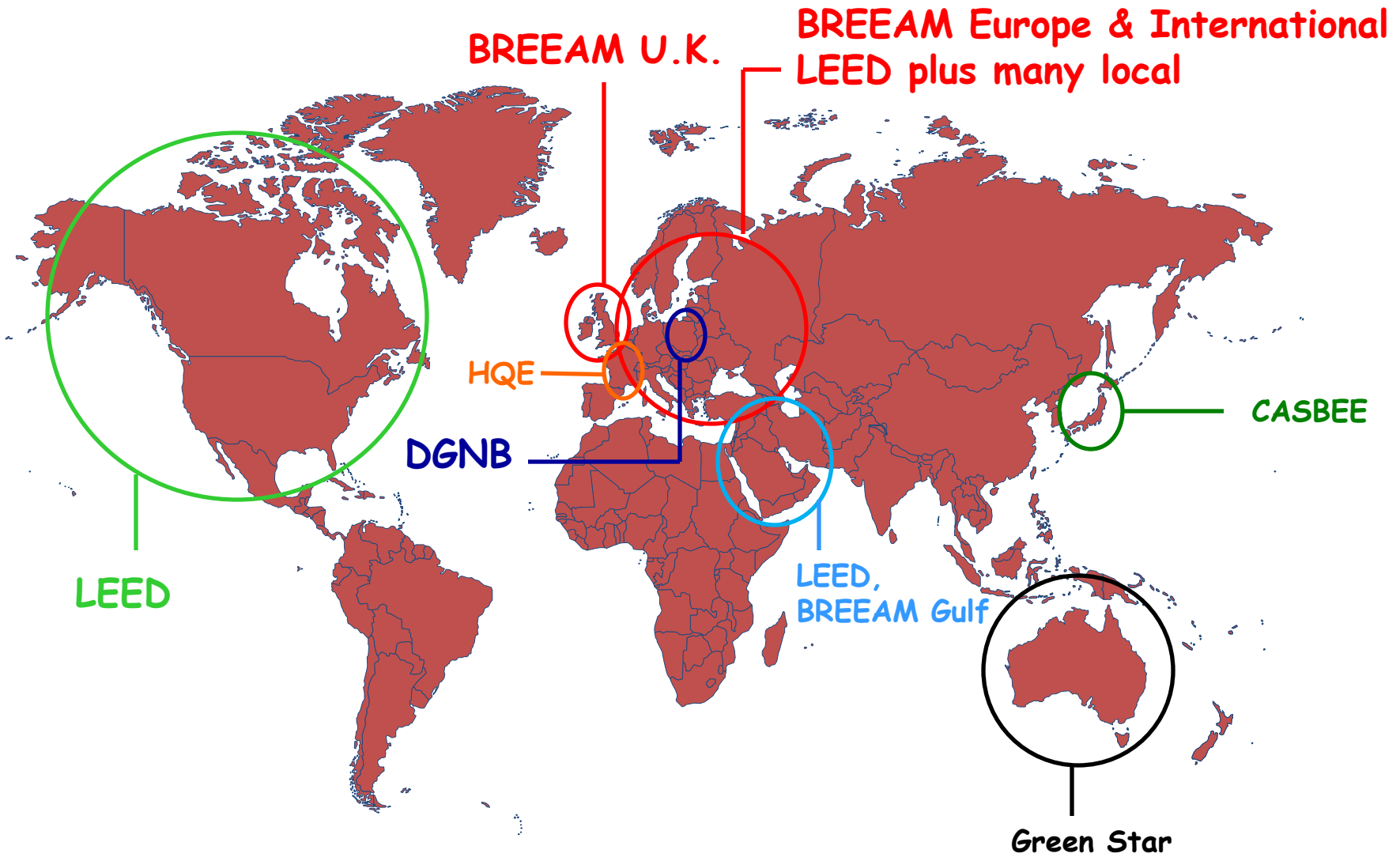
DGNB (German Sustainable Building Certificate)
Launched in 2009 in Germany. About 40 buildings are certified with DGNB (dgnb.de)

G(O)BAS (Green Olympic Building Assessment System)
Launched in 2003 in China.

MINERGIE
Launched in Switzerland. About 400 buildings are certified with MINERGIE (minergie.com)

ITACA
Launched in April 2011 in Italy (itaca.org)

Current green building certification systems



Open house The objective of OPEN HOUSE is to develop and to implement a common European transparent building assessment methodology, complementing the existing ones, for planning and constructing sustainable buildings by means of an open approach and technical platform (www.openhouse-fp7.eu)

Super buildings To develop a common understanding about the potential of sustainability assessment and benchmarking methods in progress towards sustainable built environment (www.vtt.fi)

Building Labelling Principles

Different assessment methods

Offices

Industrial

Retail

Residential

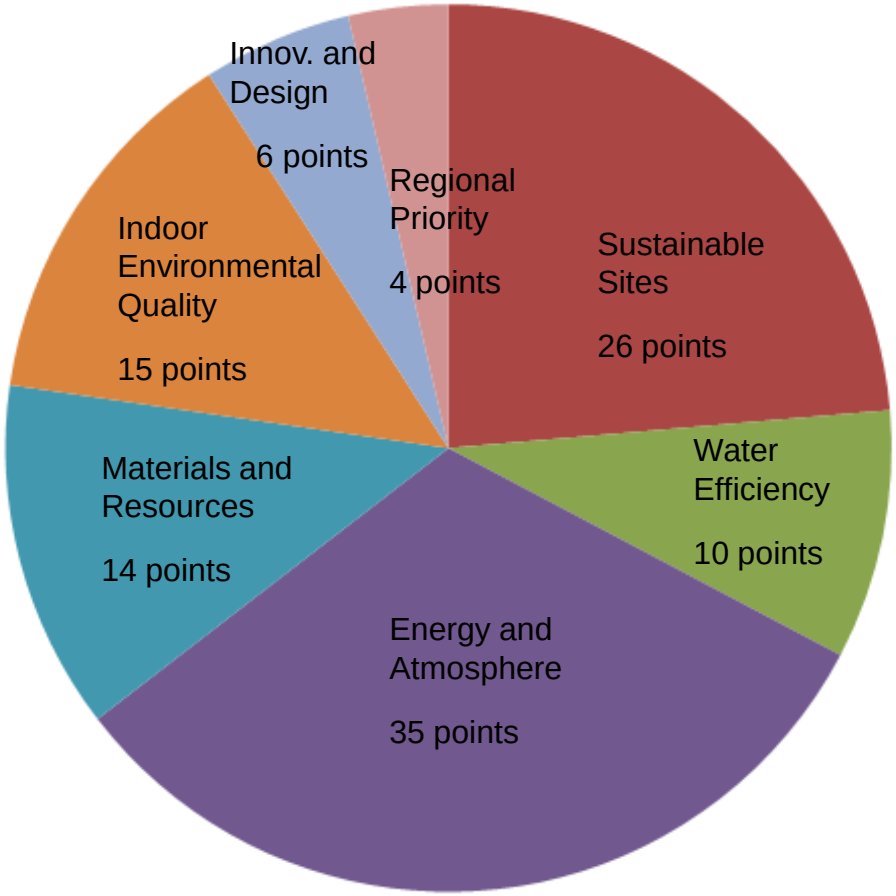
Education

Health Care

LEED Structure (categories and criterias)

LEED for NC. and MR.	Points
Sustainable Sites	26
Water Efficiency	10
Energy and Atmosphere	35
Materials and Resources	14
Indoor Environmental Quality	15
Innovation in Design	6
Regional Priority	4
	110

LEED rating	Points required
Platinum	80 and above
Gold	60-79
Silver	50-59
Certified	40-49
*No label**	*39 and below*



Sustainable Sights **26 possible points**

- Prerequisite 1 Construction Activity Pollution Prevention Required
- Credit 1 Site Selection 1
- Credit 2 Development Density and Community Connectivity 5
- Credit 3 Brownfield Redevelopment 1
- Credit 4.1 Alternative Transportation—Public Transportation Access 6
- Credit 4.2 Alternative Transp.—Bicycle Storage and Changing Rooms 1
- Credit 4.3 Alternat. Transp.—Low-Emitting + Fuel-Efficient Vehicles 3
- Credit 4.4 Alternative Transportation—Parking Capacity 2
- Credit 5.1 Site Development—Protect or Restore Habitat 1
- Credit 5.2 Site Development—Maximize Open Space 1
- Credit 6.1 Stormwater Design—Quantity Control 1
- Credit 6.2 Stormwater Design—Quality Control 1
- Credit 7.1 Heat Island Effect—Nonroof 1
- Credit 7.2 Heat Island Effect—Roof 1
- Credit 8 Light Pollution Reduction 1

Water Efficiency 10 possible points

• Prerequisite 1	Water use reduction	Required
• Credit 1	Water efficient landscaping	2-4
• Credit 2	Innovative wastewater technology	2
• Credit 3	Water use reduction	2-4

Energy and atmosphere 35 possible points

- Prerequisite 1 Fundamental commisssioning of building en. system Required
- Prerequisite 2 Minimum energy performance Required
- Prerequisite 3 Fundamental refigerant management Required
- Credit 1 Optimize energy performance 1-19
- Credit 2 On site renewable energy 1-7
- Credit 3 Enhanced commissioning 2
- Credit 4 Enhanced refigerant management 2
- Credit 5 Measurement and verification 3
- Credit 6 Green power 2

Indoor environmental quality 15 possible points

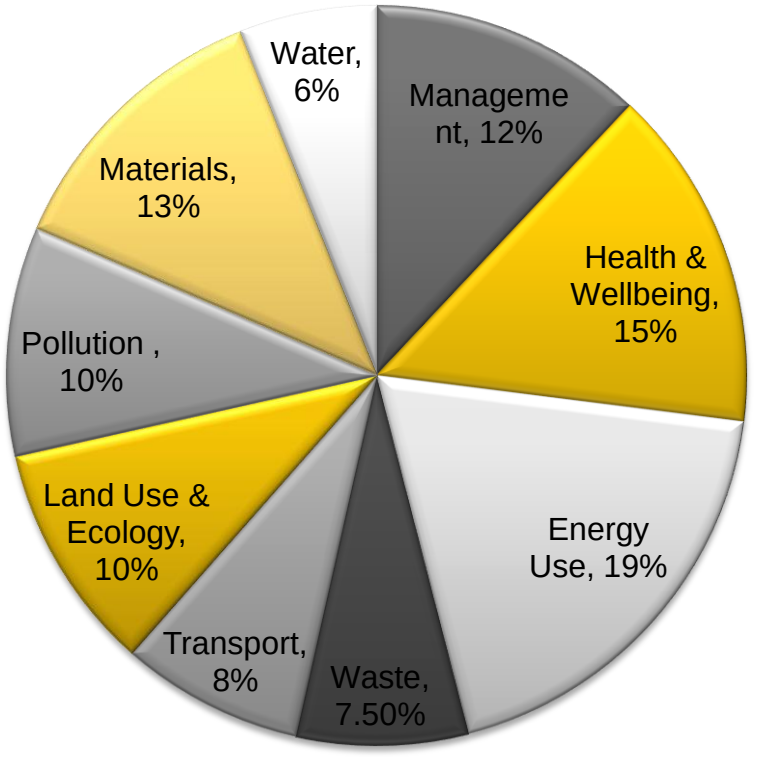
- Prerequisite 1 Minimum Indoor Air Quality Performance Required
- Prerequisite 2 Environmental Tobacco Smoke (ETS) Control Required
- Credit 1 Outdoor Air Delivery Monitoring 1
- Credit 2 Increased ventilation 1
- Credit 3.1 Const. Indoor Air Quality Managem. Plan—During Const. 1
- Credit 3.2 Const. Indoor Air Quality Managem. Plan—Before Occup. 1
- Credit 4.1 Low-Emitting Materials—Adhesives and Sealants 1
- Credit 4.2 Low-Emitting Materials—Paints and Coatings 1
- Credit 4.3 Low-Emitting Materials—Flooring Systems 1
- Credit 4.4 Low-Emitting Materials—Composite Wood 1
- Credit 5 Indoor Chemical and Pollutant Source Control 1
- Credit 6.1 Controllability of Systems—Lighting 1
- Credit 6.2 Controllability of Systems—Thermal Comfort 1
- Credit 7.1 Thermal Comfort—Design 1
- Credit 7.2 Thermal Comfort—Verification 1
- Credit 8.1 Daylight and Views—Daylight 1
- Credit 8.2 Daylight and Views—Views 1

Beyond the U.S., there are LEED Platinum-rated projects in **15 other countries**: Australia, Brazil, Canada, China, Finland, Germany, Great Britain, India, Saudi Arabia, South Korea, Spain, Sri Lanka, Sweden, Thailand, and the United Arab Emirates (mlandman.com)

BREEAM Europe Structure (categories and criterias)

BREEAM area	Weighting
Management	12%
Energy use	19%
Health and well being	15%
Transport	8%
Waste	7.5%
Land use & ecology	10%
Pollution	10%
Materials	12.5%
Water	6%
	100%

BREEAM rating	Points required
Outstanding	≥ 85%
Excellent	≥ 70%
Very good	≥ 55%
Good	≥ 45%
Pass	≥ 30%



breeam

The Code for Sustainable Buildings

This is to certify that

Houghton-le-Spring Primary Care Centre,
Brinkburn Crescent,
Houghton-le-Spring,
Durham,
DH4 5HB

has achieved a score of 86.38%, and a BREEAM rating of

OUTSTANDING

Pass Excellent Outstanding

This Design and Procurement assessment was carried out under the 2008 version of BREEAM Healthcare

Signed on behalf of BRE Global Ltd

15th February 2011
Date

Crystal MacLeod
Licensed Assessor

WD Re-Thinking Ltd
On behalf of

Sunderland Teaching Primary Care Trust
Client

Willmott Dixon
Main Contractor

P+HS Architects Ltd
Architect

Mott MacDonald
M&E Engineers

Cundall Johnston & Partners LLP
Structural Engineers

LJJ Contractors Ltd
Building Services Contractors

Breathing Buildings
Engineers

Certificate Reference: RETH-HEA-JR12-5

LEED	100 pnts 10 extra pnts
platinum: 80 points or more	
gold: 60-79 points	
silver: 50-59 points	
certified: 40-49 points	

BREEAM	100 % 10 % innovation
Outstanding	
Excellent	
Very Good	
Good	
Pass	

DGNB	100 % site extra
Gold: 80% or more	
Silver: 65-79.9%	
Bronze: 50-64,9%	

Green Star	142 points
6 stars: 75-100 'World Leadership'	
5 stars: 60-74 'Australian Excellence'	
4 stars : 45-59 points 'Best Practice'	

CASBEE	> 3,0
S BEE > 3,0	
A 3,0 > BEE > 1,5)	
B+ 1,5 > BEE > 1,0)	
B- 1,0 > BEE > 0,5	
C 0,5 > BEE.	

Challenges

The indoor climate

Thermal Climate
- Temperature
- Air Humidity
- Air velocity

Air Quality – Air cleanness
- Content of Gases
- Content of Particles

Light
- Illuminance
- "Quality"

Disturbancies
- Noise
- Electrical fields

www.vanglateenistus.ee

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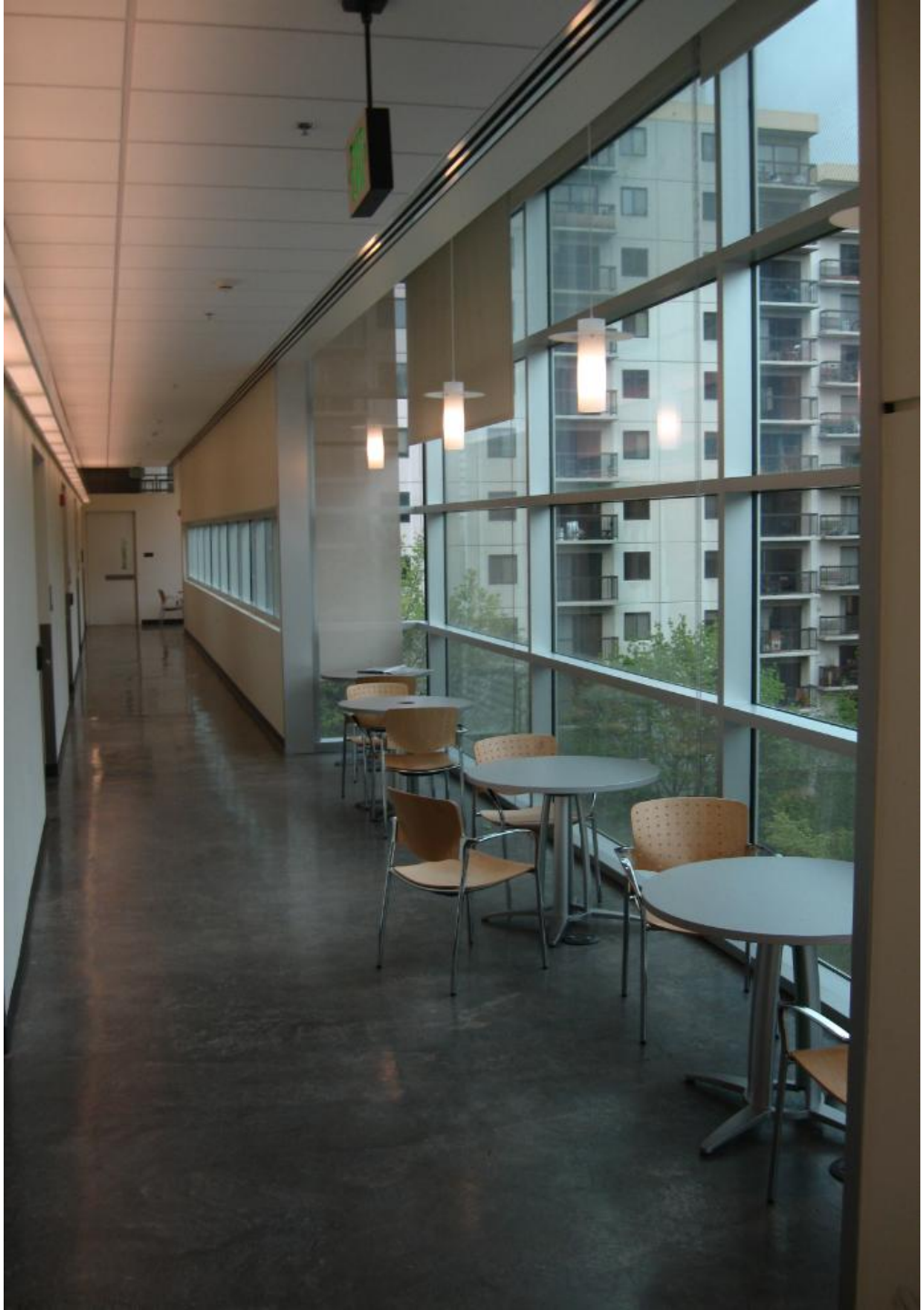
www.sailing.org



Conclusion

Thank you!

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