



# BREEAM-NOR

## Carbon footprint calculation in ISY Calcus

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# ▶▶ What is BREEAM?

- ▶ BRE (Building Research Establishment)
- ▶ BREEAM (BRE Environmental Assessment Method) 1990
- ▶ BREEAM International 2008
  
- ▶ Scoring
  - Pass
  - Good
  - Very good
  - Excellent
  - Outstanding

# ▶▶ BREEAM-NOR

- ▶ Who's behind?
  - Norwegian Green Building Council
    - 155 members so far
    - Including "All major companies in the industry"
- ▶ Based on BREEAM International
  - Adapted to the Norwegian construction industry
- ▶ Launched October 2011
- ▶ Continuously development
  - Residential buildings
  - Existing buildings



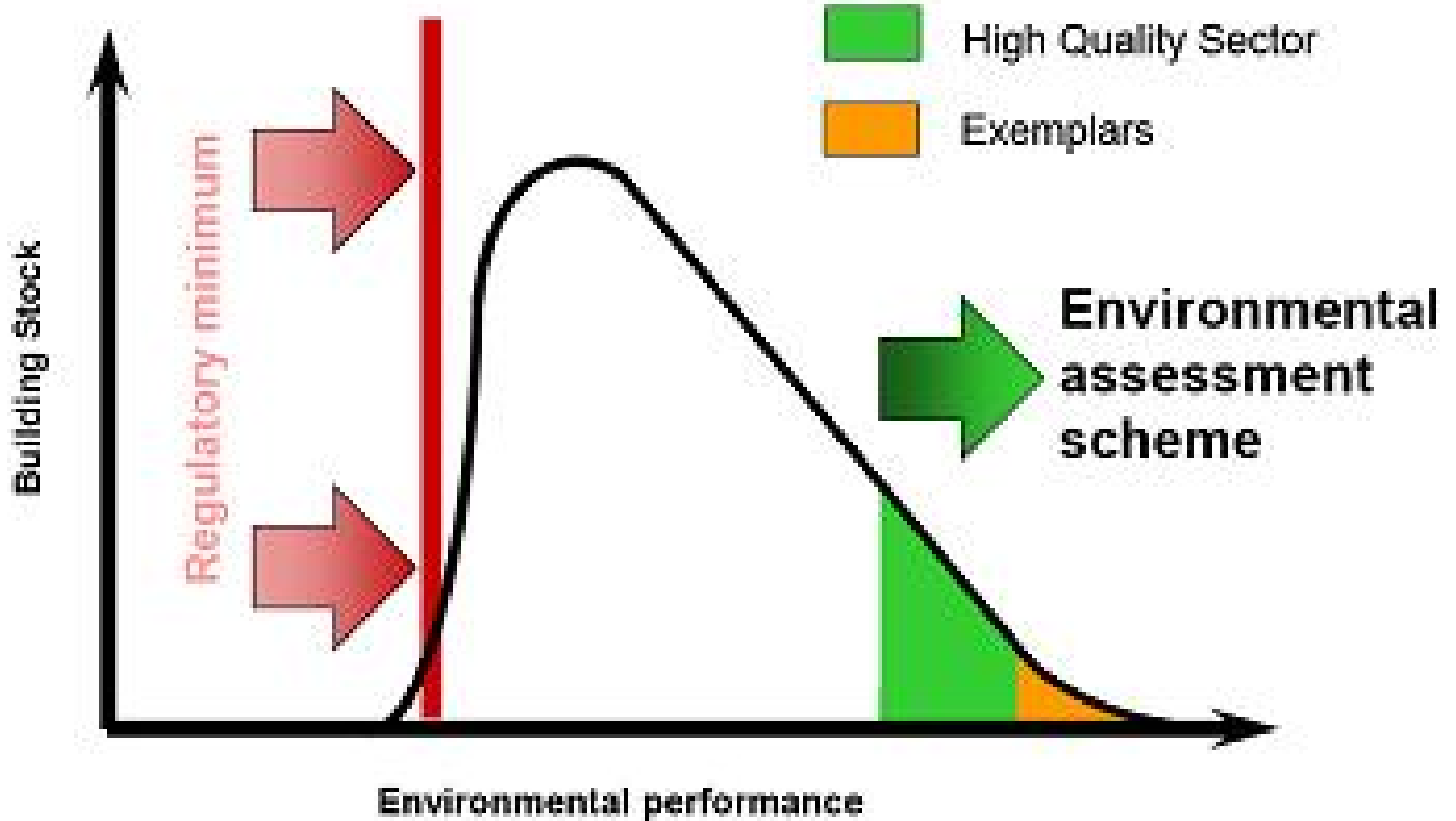
NORWEGIAN  
GREEN  
BUILDING  
COUNCIL

Founded  
17.9.2010

# ►► BREAM-NOR - What's measured?



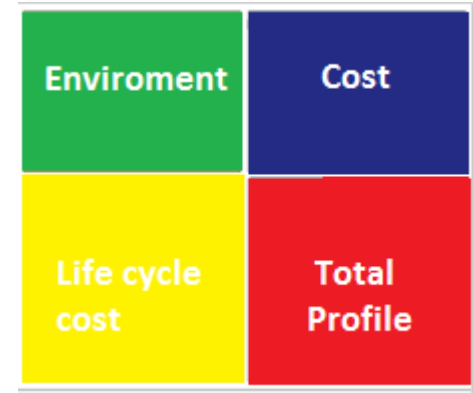
source:  
www.ngbc.no



Source:  
[www.bre.co.uk](http://www.bre.co.uk)

# ▶▶ ISY Calcus

- ▶ Early phase cost estimating software
  - 43 scalable templates
- ▶ First generation BIM module in 2007
- ▶ Carbon footprint module in 2009
- ▶ Second generation BIM module in 2012
- ▶ Life cycle cost module in 2013



# ▶▶ Carbon footprint in ISY Calcus

- ▶ Same input for Carbon footprint calculation, cost estimate (and soon Life cycle cost (LCC))
  - Why do the same job three times?
- ▶ Same program, same method, same dataset – extended with med carbon data.
- ▶ Large savings in both time and cost
- ▶ Probably better decision

# ▶▶ Carbon footprint in ISY Calcus

- ▶ CO<sub>2</sub>-eq data includes Kyoto defined greenhouse gasses
  - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub>
- ▶ Data includes
  - a) Production of raw material, b) Transportation to production site for basis material c) production of basis material
- ▶ Data does not include
  - d) Transportation to secondary production site ("Windowfactory"), e) secondary production("assembly of the window") and f) Transport to the production site.
- ▶ Most of the data comes from Statsbygg



# ▶▶ Demonstration

- ▶ See the link between cost and carbon footprint
- ▶ Template documents for 43 different building types
- ▶ Import IFC file (3D model)

# ▶▶ Why use ISY Calcus?

## ▶ Benefits

- Costs and carbon footprint updated through the project
- More and more accurate through the project
- Good and fact based discussions
- Simulate consequences of changes
- Identify and simulate possible improvements
- Bring ISY Calcus in meetings. Make decisions based the cost and carbon footprint estimate