

Defining Sustainable buildings

going Sustainable Building Alliance with

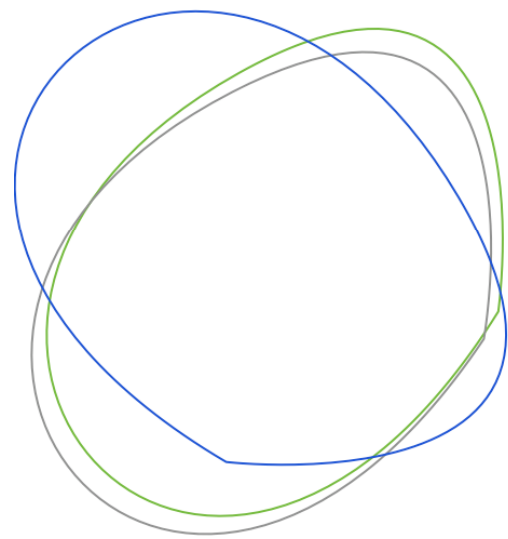
Work prepared with support of :

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DGNB (E Schmincke),

QUALITEL (A Cunha)



Sustainable Building Alliance

Common metrics for key issues

Establish

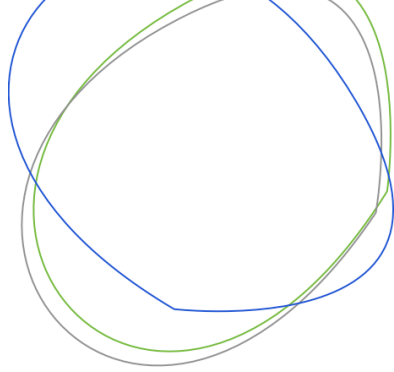
A common core set of performance indicators for sustainable buildings

Coordinate

Share R and D efforts

Promote

Importance of using common indicators
Adapted to local conditions



Sustainable Building Alliance

Common metrics for key issues



Common Metrics - why?

to facilitate a common approach to the assessment of the environmental impacts

to develop a common international vocabulary for building environmental assessment

to facilitate communication between stakeholders

to facilitate inter building and inter countries comparisons

Key challenges

Select first candidates from a large number of potential individuals

Develop a methodology to assess them

Define a way to report on the indicators

Define subsidiarity between international and national approaches

Validate the approach

Key challenges -1

Select first candidates from a large number of potential indicators

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The 6 indicators chosen for the first pilot phase

source
pletion

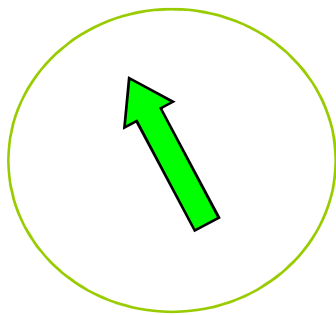
Indoor
Environment
Quality

Building
Emission

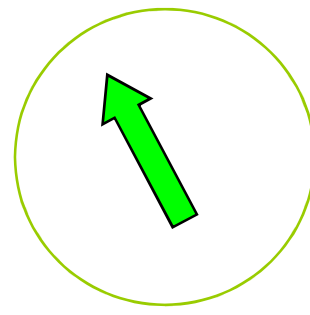
Primary
Energy

GHG Emission
(GWP)

Water



Thermal
comfort



Indoor air
quality

Wastes

Where are we today?

Key challenges - 2

Select first candidates from a large number of potential indicators

Develop a methodology to assess them

Define a way to report on the indicators

Define subsidiarity between international and national approaches

Validate the approach

A pragmatic life cycle approach

The goal is to take into account the whole life cycle

before use stage	product stage
	construction stage
use stage	operation of building incorporated services
	operation of non building incorporated services
	maintenance repair and refurbishment
	transport
end of life stage	deconstruction
	disposal stage

What is in the pilot phase version

		CO2 eq	Energy	Water	W
before use stage	product stage				
	construction stage				
use stage	operation of building incorporated services				
	operation of non building incorporated services				
	maintenance repair and refurbishment				
	transport				
end of life stage	deconstruction				
	disposal stage				

Required in 2009 version
Optional in 2009 version
Not included in 2009 version

Where are we today?

Key challenges - 3

Select first candidates from a large number of potential indicators

Define a methodology to assess them

Define a way to report on the indicators

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Units for reporting data

Green house gas emission (GWP)

CO₂ eq (kg)

Energy

Primary energy (kWh, MJ)

Water

m³

Wastes

4 type of wastes differentiated

- Hazardous (Tonnes)
- Non Hazardous (Tonnes)
- Inert (Tonnes)
- Nuclear (kg)

Energy m²/yr/<reference unit> - ? - related to “functional equivalent”

Water occupant/yr/<reference unit> -? - related to “functional equivalent”

Thermal comfort

% of occupied period where temperature exceeds a given value

- e.g. 2% of time temperature above 26°C

Indoor air quality

CO₂ in ppm

Formaldehyde in [g/m³

The indicators could be assessed at two stages:

before use (estimated)

in use (measured?)

Building Characteristics

“Functional Equivalent” – essentially a shorthand description of the building

key parameters to understand basis of comparison between buildings

Use of Building	<Office, house , school etc.>
Occupancy (Pattern of Use)	<number of occupants, hours of use>
Required Service Life	<for the building in years>
Regulations and Standards	<Country/Region for the building regulations or standards for the construction or use of the building>
Climate Type	<e.g. Mediterranean.>

Reporting the results

We are now working on the layout

Functional Equivalent											
Type of Building		<Office, house, school etc.>									
Occupancy (Pattern of Use)		<number of occupants, hours of use>									
Required Service Life		<for the building in years>									
Regulations and Standards		<Country/Region for the building regulations or standards for construction or use of the building>									
Climate Type		<e.g. Mediterranean>									
Indicator	Annualised Unit	Before use stage			Use Stage				End of Life		
		Product Stage		Construction Stage		Operation of building-incorporated services	Operation of non building-incorporated appliances	Maintenance, repair and refurbishment	Transport (of people)	Deconstruction	Disposal
		Raw Material Process	Transport	Manufacturing	Transport						
GWP	CO ₂ eq										
Energy	kWh										
Water	m ³										
Waste	Tonnes Hazardous										
	Tonnes Non-hazardous										
	Tonnes Inert										
	kg - Nuclear										
					Design	In-use					
IEQ	Thermal Comfort %TOR										
	Thermal Comfort Dev										
	IAQ [CO ₂] ppm										
	IAQ [Formaldehyde] µg/m ³										

Stages included for each indicator		Required in 2009 version		Optional in 2009 version
		Not included in 2009 version		Not relevant

Where are we today?

Key challenges - 4

Select first candidates from a large number of potential indicators

Develop a methodology to assess them

Define a way to report on the indicators

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Validate the approach

Where are we today?

Key challenges - 5

Select first candidates from a large number of potential indicators

Develop a methodology to assess them

Define a way to report on the indicators

Define subsidiarity between international and national approaches

Validate the approach

Main comments received

why do you concentrate on a small set of indicators

Indoor air quality is a difficult and not fully mature issue
simple approaches could be misleading

You concentrate on new buildings and should consider
higher priority

Time starting pilot phase check on real cases:

Feasibility

apply common metrics

apply 1 tool metrics

identify overlap
between
common metrics
and tool metrics

Result: understand how
much effort is needed for
getting 100 % overlap

Comparability

apply different tool metrics

apply rating mechanisms
of different tools

identify overlap
between
common metrics
and tool metrics

Result: understand
differences between tools,
understand relevance of
difference

Overlap of requirements between common and tool metrics

