



CUNDALL RIBA **# Publishing**

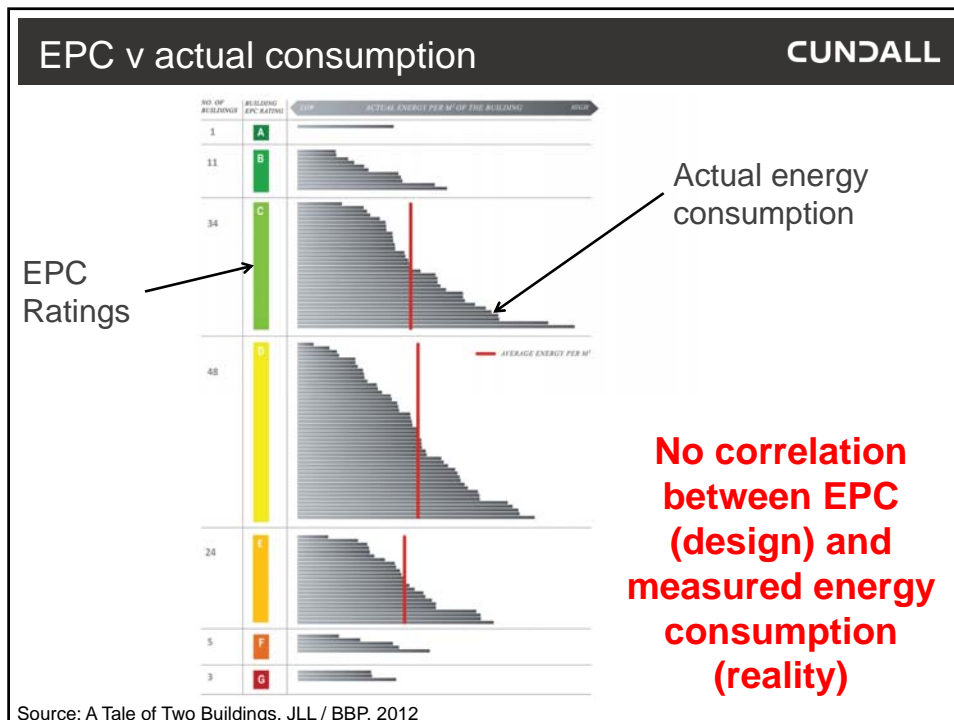
What colour is your building?

David Clark
Partner, Cundall

1.
Real energy,
not just design efficiency

An ounce of performance is worth pounds of promises.

Mae West



Make energy visible

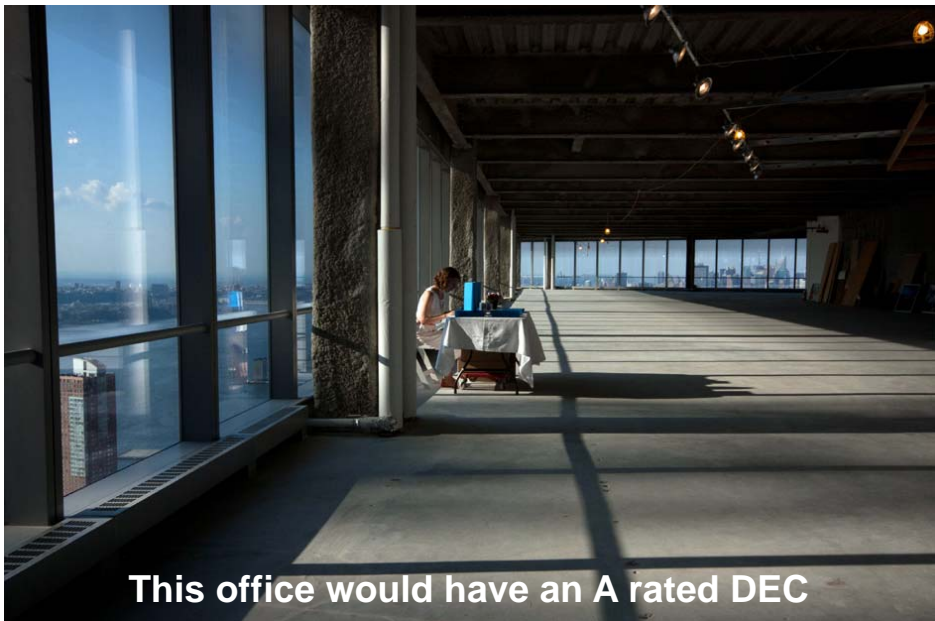
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- Reputation can be a bigger driver than energy cost
- Put actual performance on display in every foyer
- Make energy database freely available on line
- Landlords to report monthly energy consumption to tenants



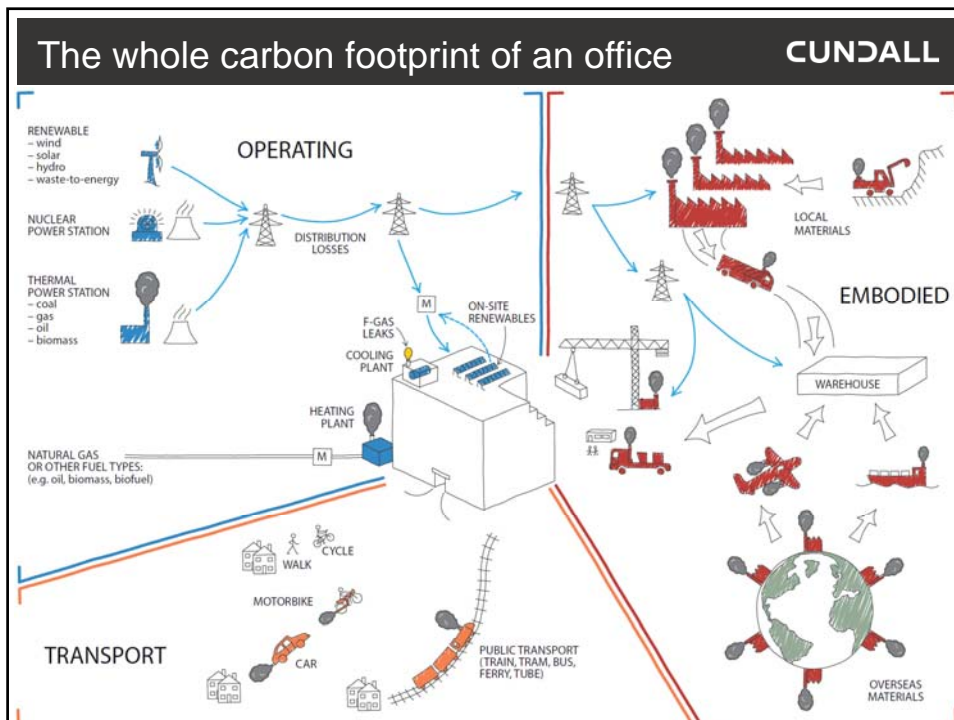
Benchmarking needs to include occupancy

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This office would have an A rated DEC

2. Consider the whole carbon footprint



Embodied v operating carbon (UK office)

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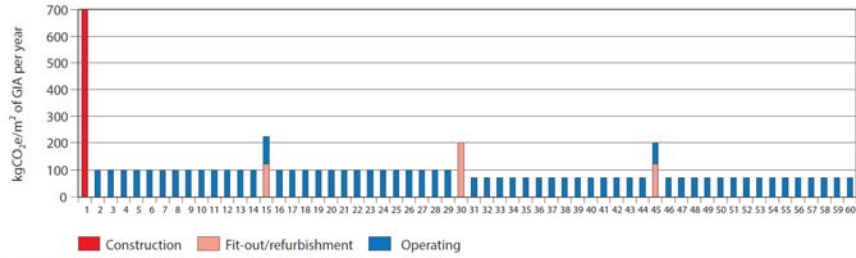


Fig 3.9 Base case – annual embodied and operating carbon (kgCO₂e/m²)

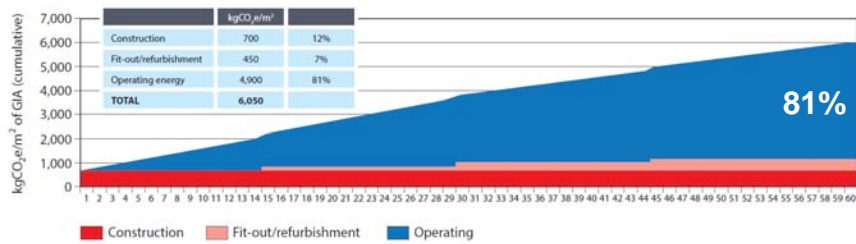
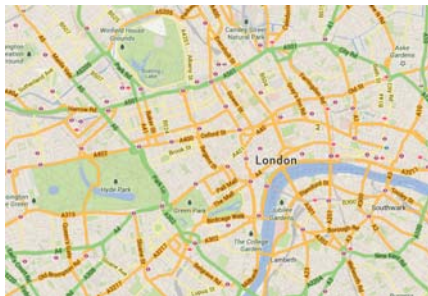


Fig 3.10 Base case – cumulative embodied v operating carbon (kgCO₂e/m² of GIA)

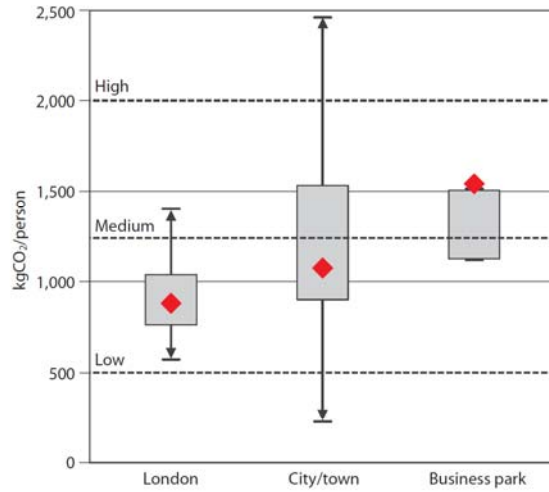
City centre v out-of-town

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kgCO₂ / person by location

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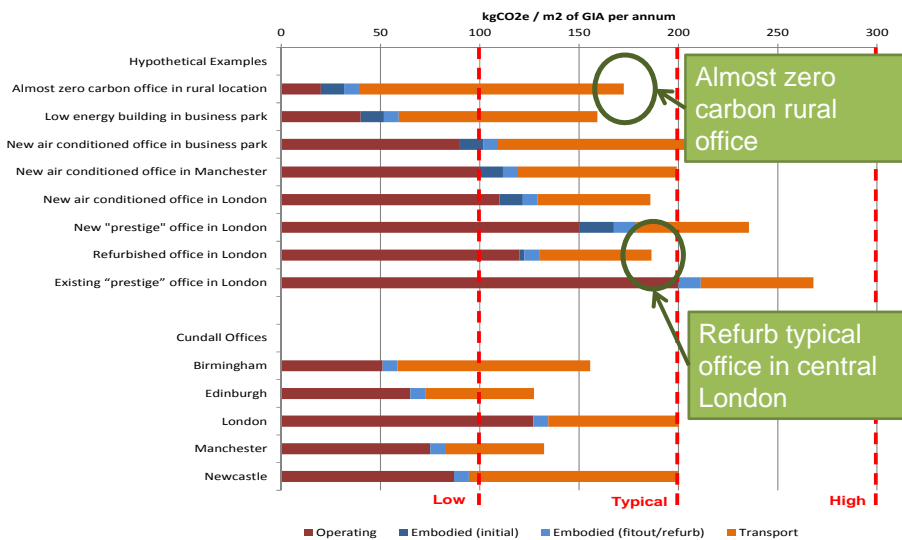


The grey blocks show the survey results falling within the upper and lower quartiles. The vertical lines show the full range of results. The diamonds show the results of the 2002 census data analysis. (Source: Wyatt, P)

Fig 4.3 Summary of commuting survey results and 2002 census analysis by location type

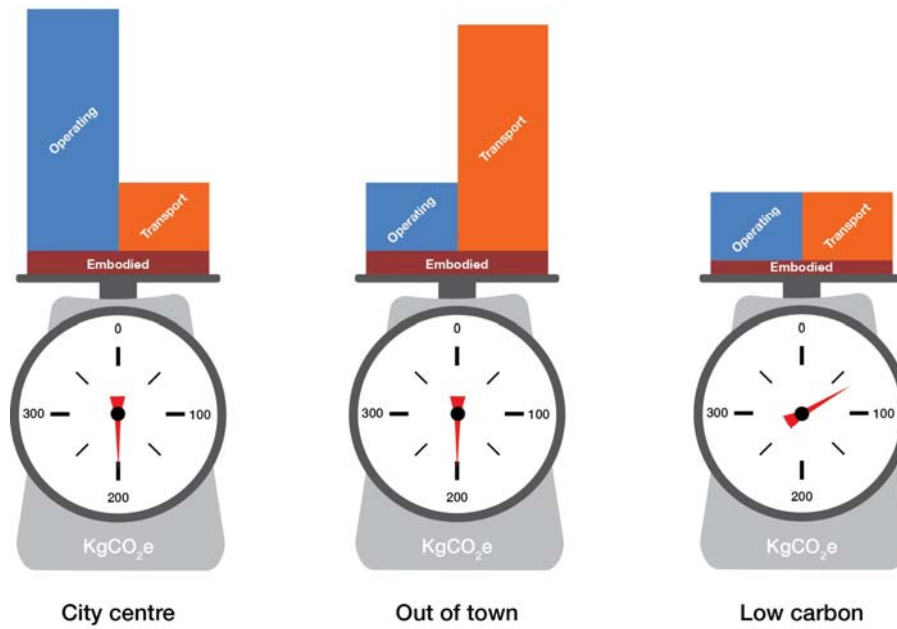
Whole carbon footprint

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We need to reduce the *whole* footprint

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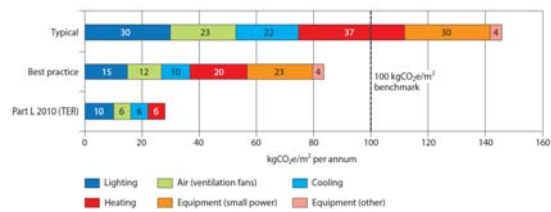
3.
Understand energy use,
then reduce it

Understand where energy is used

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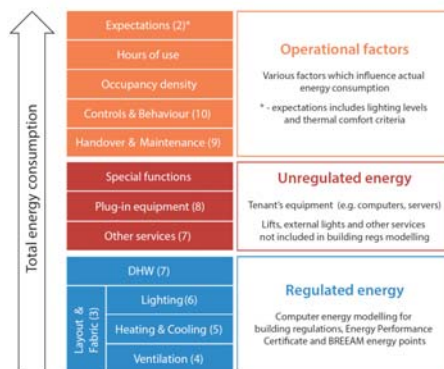
Lighting
Equipment
Air (ventilation)
Cooling
Heating



The other steps

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1. Understand where energy is used
2. Design criteria
3. Building fabric
4. Ventilation
5. Heating & Cooling
6. Lighting
7. Equipment
8. Other services
9. Commissioning, handover & maintenance
10. People



Keep it simple
Size it right
Do it well

Design

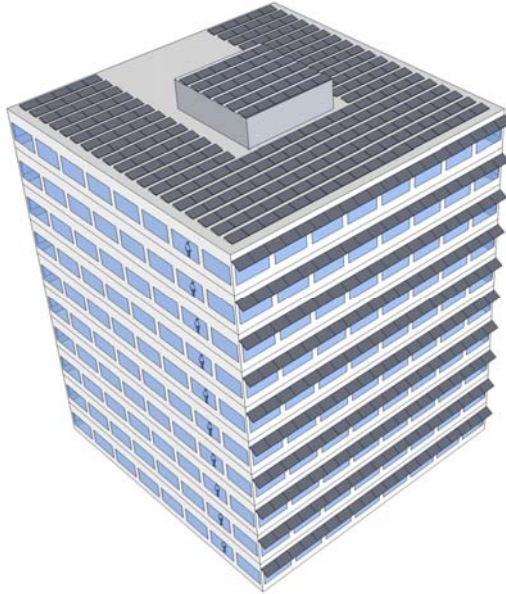
Follow it through
Tune it up
Capture the feedback
Continuously improve

Operation

4.
Be realistic about
renewables on buildings

PV on London office building

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10 storeys, 10,000m²

105kgCO₂e/m² of GIA

466m² of PV panels

No overshadowing

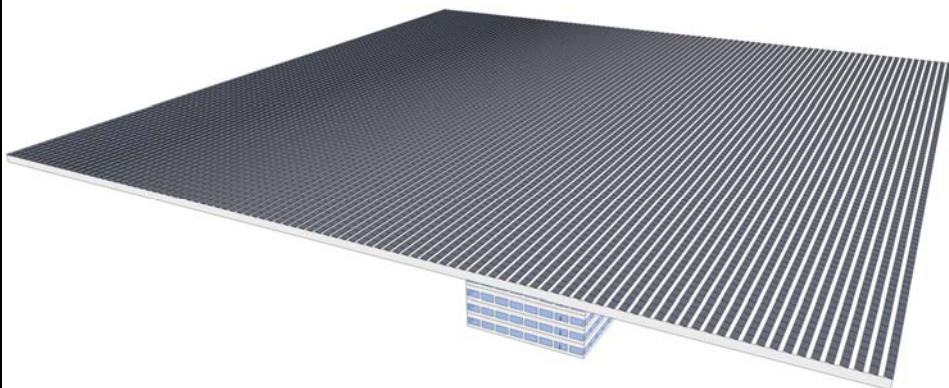
How much carbon
does this save?

4.5kgCO₂e/m² of GIA

4% of carbon

Zero carbon office?

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15,000m² of PV panels = 105kgCO₂e/m²

1.5m² of panel per 1m² of floor

Avoid bling

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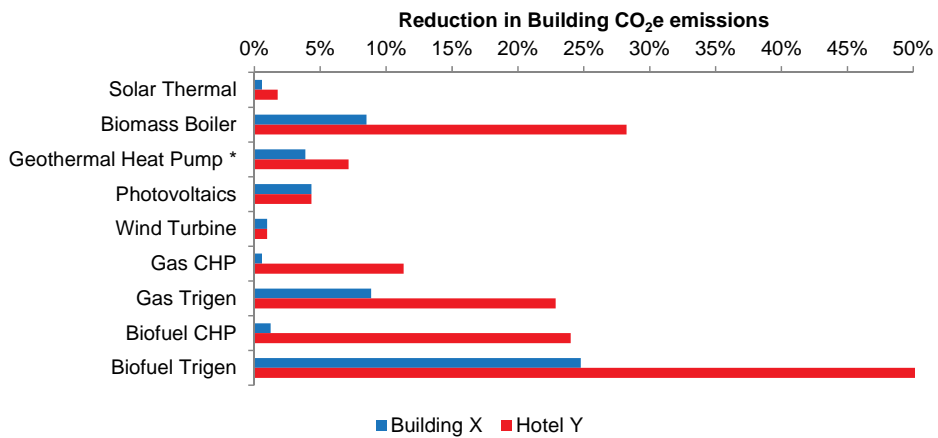


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Carbon reduction – but at what cost?

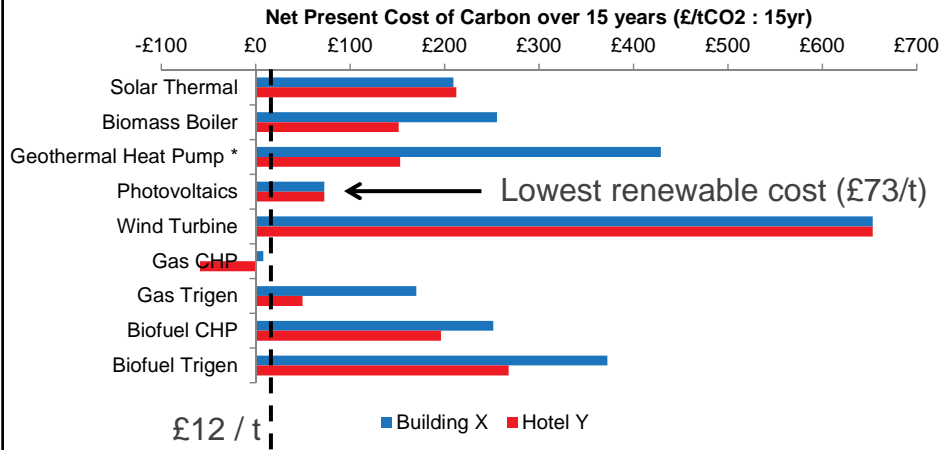
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but what about cost of delivering these carbon savings?

The cost of carbon (excl FiTs & RHI)

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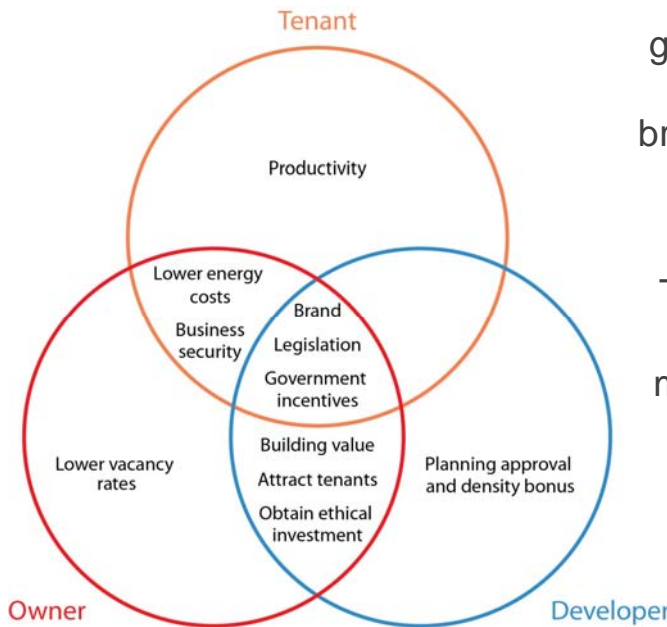
CRC scheme = £12
 EU ETS = £4
 UN CDM (kyoto) = 40p

5.

It's the economy, stupid

Turn drivers into financial benefit

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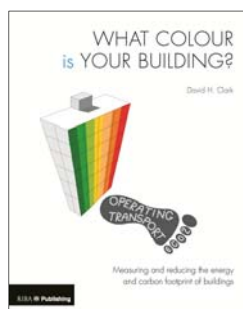


green premium
or
brown discount?

Turn drivers into
cost benefit to
make a business
case

About the book

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Part 1 – What Colour

Measuring energy & carbon in buildings

1. Energy & carbon in buildings
2. How much energy do buildings use?
3. Embodied carbon
4. Transport carbon
5. Whole carbon footprint

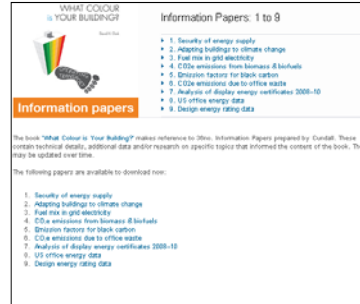
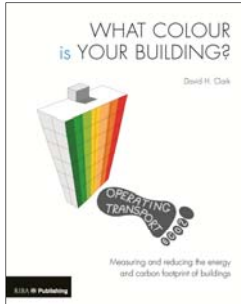
Part 2 – Change Colour

Reducing energy & carbon in buildings

6. Ten steps to reducing energy consumption
7. Renewable energy
8. Lower carbon materials
9. Green travel
10. Making the business case

About the book

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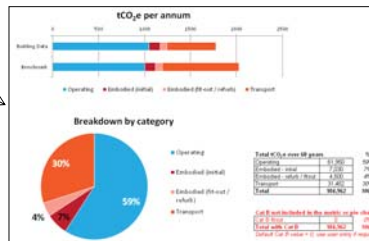
Appendices (13)

Info Papers (30+)

These are free to download
(you don't need to buy the book)

www.whatcolourisyourbuilding.com

Footprint Tool



Royalties

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“Someday I want to be rich. Some people get so rich, they lose all respect for humanity. That’s how rich I want to be.”

Rita Rudner

All author royalties from the book are donated to:

- 30% to Cool Earth
- 30% to charities
- 40% to Cundall Innovation Fund (R&D)

Many thanks to:

CUNDALL

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Technical data
Chris Botten (Better Buildings Partnership)
Bill Bordass (Usable Buildings Trust)

RIBA # Bookshops

ribabookshops.com/colour

What Colour is Your Building?

Measuring and reducing the energy and carbon footprint of buildings

Practical guidance to how to calculate, compare and reduce the whole carbon footprint of buildings.

David H. Clark

RIBA Publishing | 2013 | ~~£30.00~~ **£30**

"An important and timely guide to help us navigate the often misunderstood subject of energy use in and around buildings. Debunking myths and providing a simple step by step guide to measuring and minimising real energy use, this is essential reading."

- Paul King, CEO of UK Green Building Council

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WHAT COLOUR is YOUR BUILDING?

David H. Clark



Measuring and reducing the energy and carbon footprint of buildings

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