

“How can process improve built asset operational performance?”

CE asset management task group, Jan 2017



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Introductions



John O'Brien
Group chair



Colm Quinn
Group secretary



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Meeting objectives

Share leading thinking and insights

Share CE's members lessons learnt

Update group on WLP+ project progress

Capture key insights for wider dissemination



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Agenda

1.30pm 25 th January 2017	How process can improve operational performance	Examining the use of BIM, soft landings etc. to improve the operational performance of built assets
1.30pm 26 th April 2017	The use of big data to improve built asset performance	Unlocking and using big data to improve built asset performance
1.30pm 12 th July 2017	Integrating data systems	How to improve the performance of built assets by joining up data systems
1.30pm 20 th September 2017	Making existing built asset work	How to improve the performance of existing built assets
1.30pm 24 th January 2018	Asset management summit	Joining up guidance and insights for CE members to help differentiate their services



Agenda

“Collaborative Working Group - lessons learnt” – **George Stevenson, MD, Activeplan**

“Addressing the performance gap – not just energy” – **Dr Andy Lewry, Principal Consultant, BRE**

“Using BIM to improve construction and soft landings outcomes” – **Chloe Obie, Head of BIM, Bouygues**

WLP+ update, AOB, next meeting – **John O’Brien, LCMB**



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“Addressing the performance gap – not just energy”

Name of Presenter: Dr. Andy Lewry

Date: January 2017

Real estate asset management

Management of real estate investments aimed at maximising property value and return on investment via

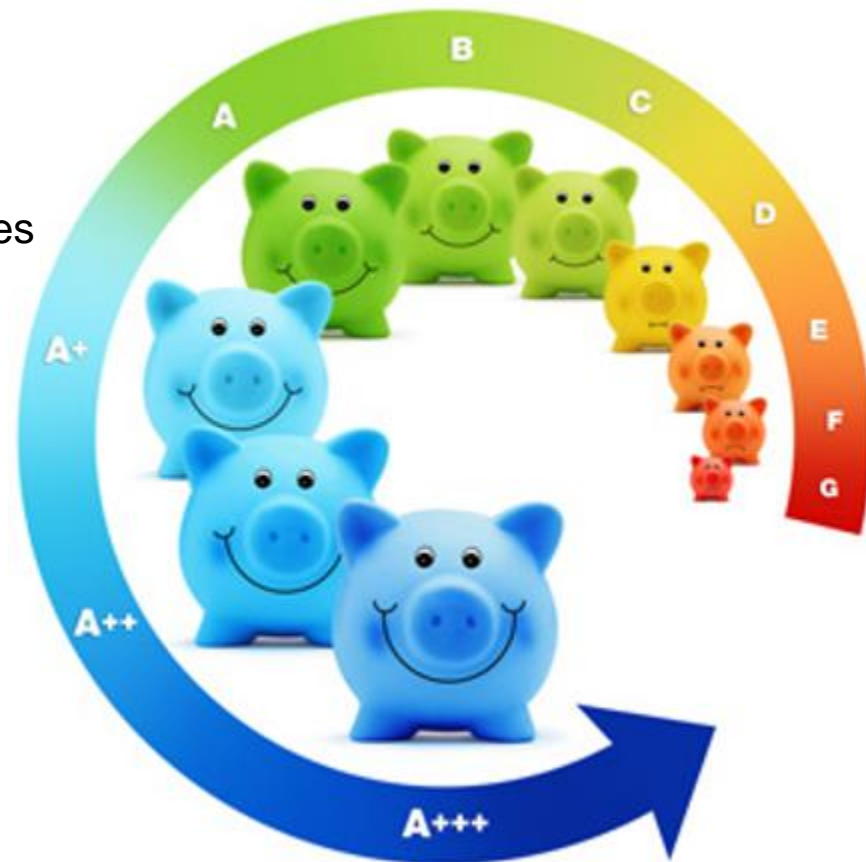
- Effective risk management
- Efficient property management
- Identification and implementation of valuable improvements



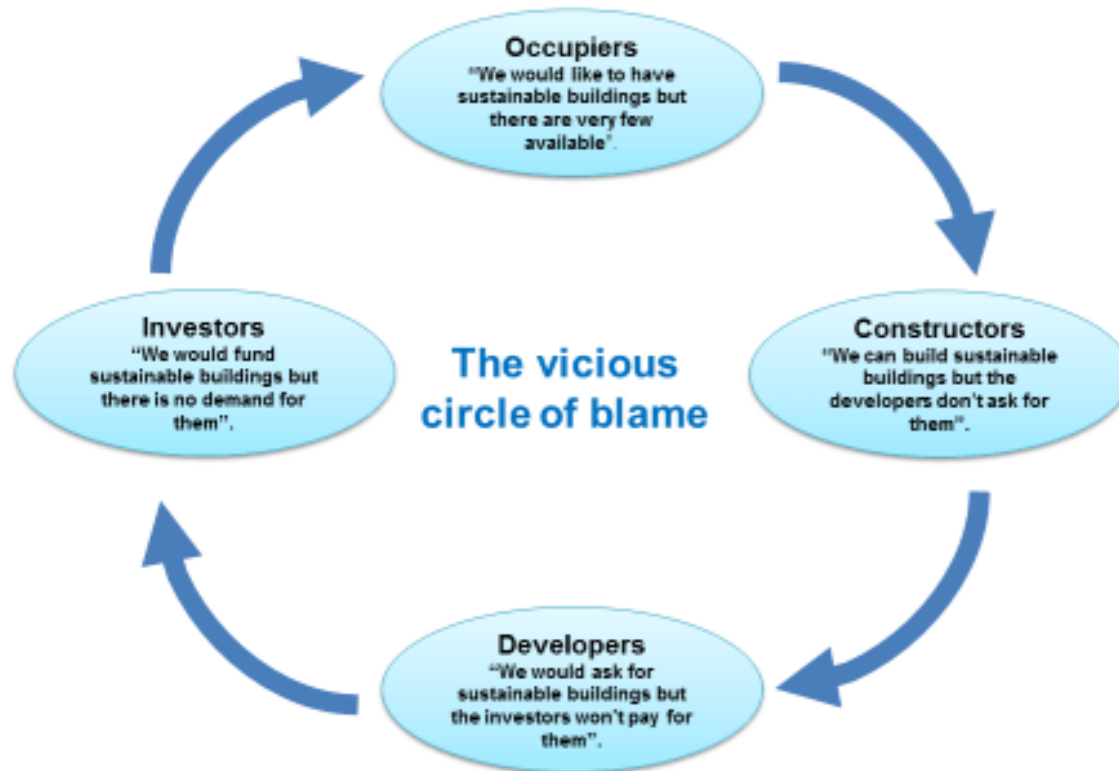
A different definition of building performance

A high-performing building generates maximum profit via

- High and continuous rental income
- Low operating & maintenance cost
- Low depreciation



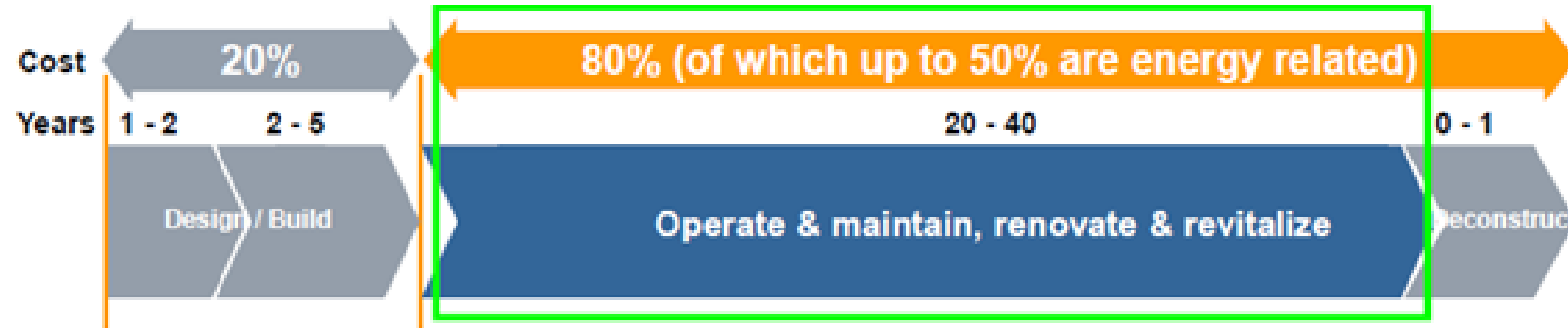
Split responsibilities in rented offices



Poor operation leads to:

- Increased Running costs**
- Lower rentable values**
- Tenants wanting to renegotiate rent values based on maintenance issues**
- Shorter and lower value leases**
- Longer void periods – reduction of income**
- Increased complaints – loss of reputation**

Operational Expenditure (OpEx)



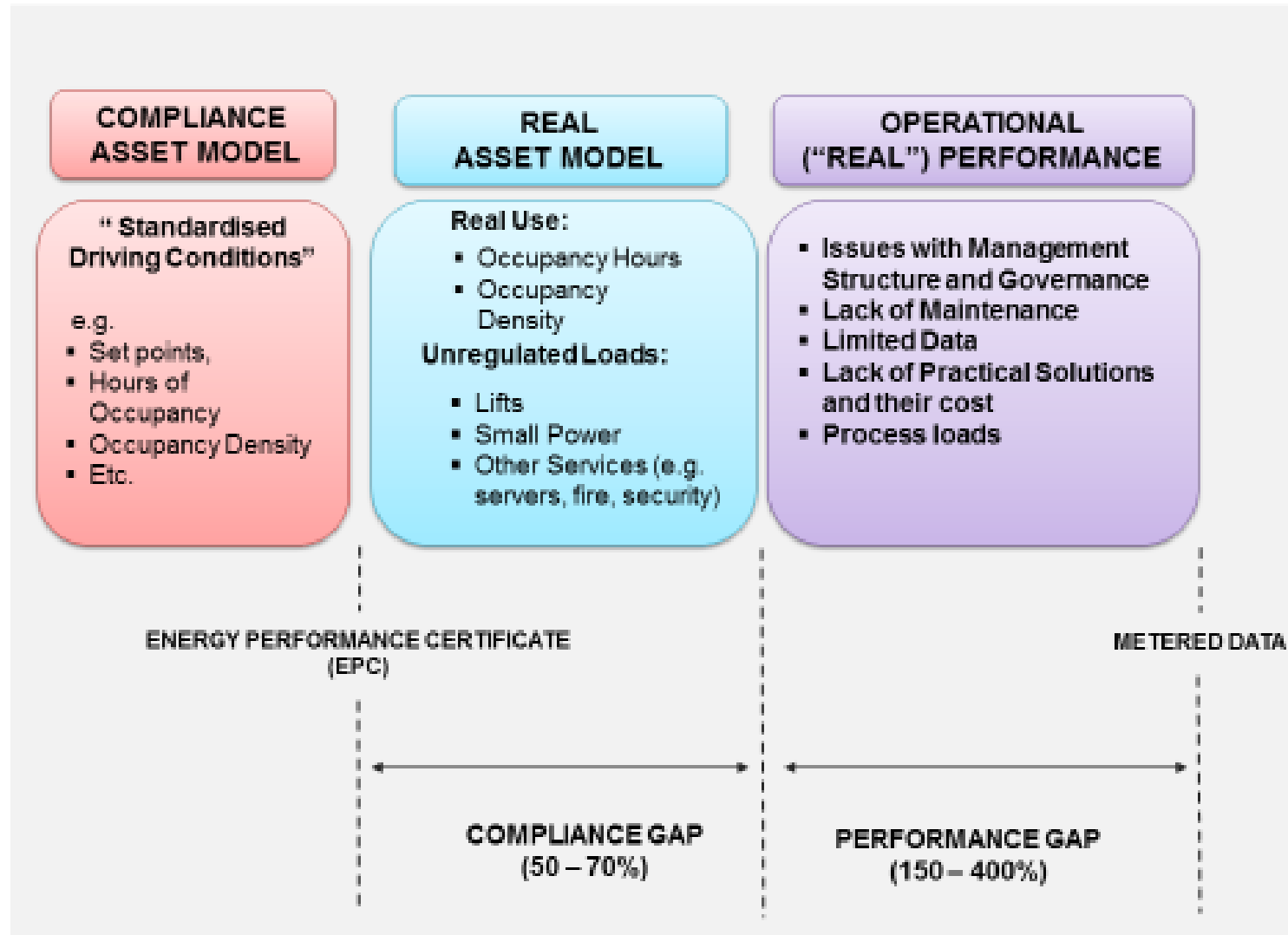
- 80% of the life costs of a building are Operational
- Operational Energy related costs are up to:
 - 40% of the life costs
 - 50% of the operational costs

Operational costs

These include:

- Occupants and their requirements
- Energy costs
 - We have used this as the example as it is the biggest but the same techniques can be applied to maintenance, water, waste etc.
- Maintenance
- Repair and/or Replace
- Procurement
- Invoicing
- Waste removal

Performance gap & Designing for compliance



Four main aspects:

- The inherent efficiency of the building (asset energy performance)
 - Designing for compliance rather than for performance
- Occupancy patterns and required internal conditions
 - Compliance gap
- Energy use by equipment and for process loads
 - Compliance gap
- How the building is operated and managed
 - Performance gap

To manage we must be able to:

- **Measure**
 - Monitoring & Targeting (M&T)
- **Understand**
 - Discovering the reasons – Audits (Energy)
- **Be able to control**
 - Building controls and Facilities management

Effect on value of asset:

- Deterioration of value**
- Service life of plant reduced**
- Fabric lifetime reduced**
- Costly remedial works to maintain value**
- In ‘void’ periods there is likely to be still further deterioration through lack of use.**
- Reputation**

How do we define a good building?

- Have a lack of metrics
- Metric commonly used KW.hr/m²/yr
- Need to Value the performance of “base buildings”
 - Issue: lack of baseline & benchmark data
 - UK national benchmarks are 30 years old
 - Australia’s success has built upon the NABERS Energy benchmarking system
- Real Estate Environmental Benchmark (REEB)

Real Estate Environmental Benchmark (REEB)

- From the Better Building Partnership (BBP)**
- Based on the performance of buildings ‘in-use’**
- Publicly available operational benchmarks**
- Based on the annual consumption data of BBP members property portfolios**
- Benchmarks covered**
 - Energy**
 - Carbon**
 - Water**
 - Waste performance**

Real Estate Environmental Benchmark (REEB) cont'd

– Sectors covered

- Offices
- Shopping centres
- Retail
- Leisure parks

– Benchmarks are based on a 3 year rolling average

– Updated each year

– Office sample size

- Limited for naturally ventilated

REEB Benchmarks - offices

Sample size

Total number of properties are those included in the UK benchmarking database. There are strict quality control protocols to ensure the Benchmark is robust. Properties are only included in the Benchmark once we have three years' or more of validated data (from last five years), and they meet the assumptions outlined above. The dataset will grow as we update the Benchmark annually.

– Office air-conditioned:

- total = 508, included = 185, excluded = 323

– Office naturally ventilated:

- total = 99, included = 25, excluded = 74

REEB – Energy Benchmarks - offices

	Air-conditioned		Naturally ventilated*	
	Good practice	Typical practice	Good practice	Typical practice
£ / sq m NLA / year	£20.48	£29.65	£9.58	£18.15
£ / sq ft NLA / year	£1.90	£2.75	£0.89	£1.69
Energy (kWh Electricity equivalent / sq m NLA / year)	222	294	88	187
Electricity (kWh / sq m NLA / year)	179	253	68	139
Fuels & thermals (kWh / sq m NLA / year)	63	112	84	124

* limited sample size

REEB – Water Benchmarks - offices

	Good practice	Typical practice
£ / sq m NLA / year	£0.90	£1.40
£ / sq ft NLA / year	£0.08	£0.13
Litres / person / working day	28	41
Litres / sq m NLA / year	448	700

REEB – Waste Benchmarks - offices

	Proportion by weight	
	Good practice	Typical practice
Segregated on-site sent for recycling, re-use or composting	52%	41%
Direct-to-landfill averted	100%	100%

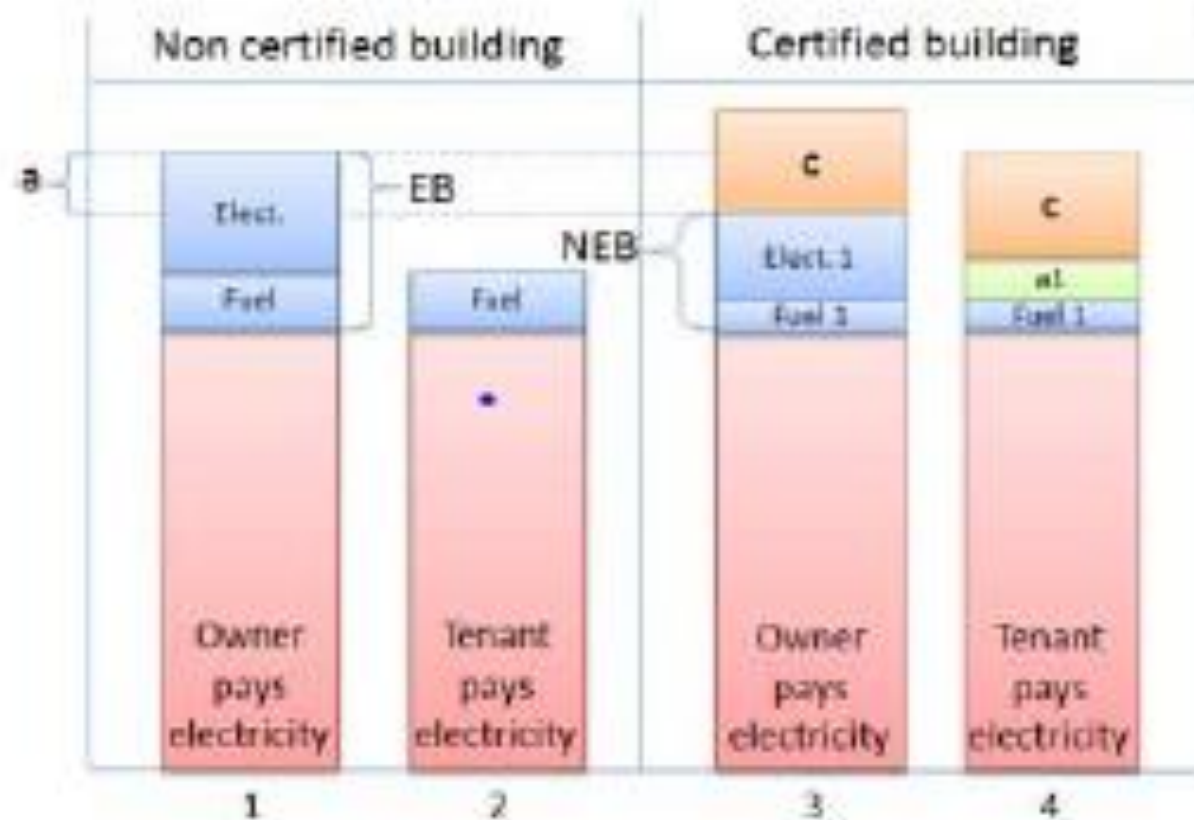
What are the benefits?

- Comparison with benchmarks for similar users**
- Setting simple targets to create a common language**
- Identify poor performers and areas for improvement**
- Reporting on the above - providing information for action**
- Supports Asset protection and leads to less down time**
- Actions lead to Rentable value retention**
- Cost control**
 - resource efficiency**
 - lower energy and water consumption**
 - waste minimisation**

Setting targets

Company	From	To	N ^o years to meet target	Reduction target	Indicator type	Portfolio basis	Exclude sub-metered to tenant?	Adjustments?
British Land	2009	2015	6	40%	Absolute	Like-for-like	Yes	Weather-driven heating
	For newly managed buildings		5	30%	Absolute	Newly managed buildings	Yes	Weather-driven heating
Capital and Regional	2013	2014	1	5%	Absolute	Like-for-like	not relevant	Not stated
Hammerson	2010	2015	5	20%	Intensity (per m ²)	Like-for-like	Yes	No adjustments
Hermes Real Estate	2006	2020	14	40%	Absolute	As stood in each year	Yes	No adjustments
	2013	2014	1	5%	Intensity (per m ²)	As stood in each year	Yes	No adjustments
	2013	2014	1	5%	Absolute	Like-for-like	Yes	Weather-driven heating
Land Securities	2010/11	2020/21	10	15%	Intensity (per m ²)	Like-for-like	No	No adjustments
Legal and General Properties	2010	2020	10	20%	Intensity (per m ²)	Like-for-like with base line	Yes	Weather-driven heating and vacancy rate
M&G Real Estate	2012/13	2013/14	1	7%	Intensity (per m ²)	Like-for-like Shopping Centres	Yes	Weather-driven heating
	2012/13	2013/14	1	5%	Intensity (per m ²)	Like-for-like ISO14001 accredited multi-let offices	Yes	Weather-driven heating
The Crown Estate	2011/12	2021/22	10	50%	Intensity (per m ²)	As stood in each year	No	Vacancy rate
Workspace Group	2011/12	2012/13	1	5%	Absolute	As stood in each year	No	Vacancy rate

Final step is validation



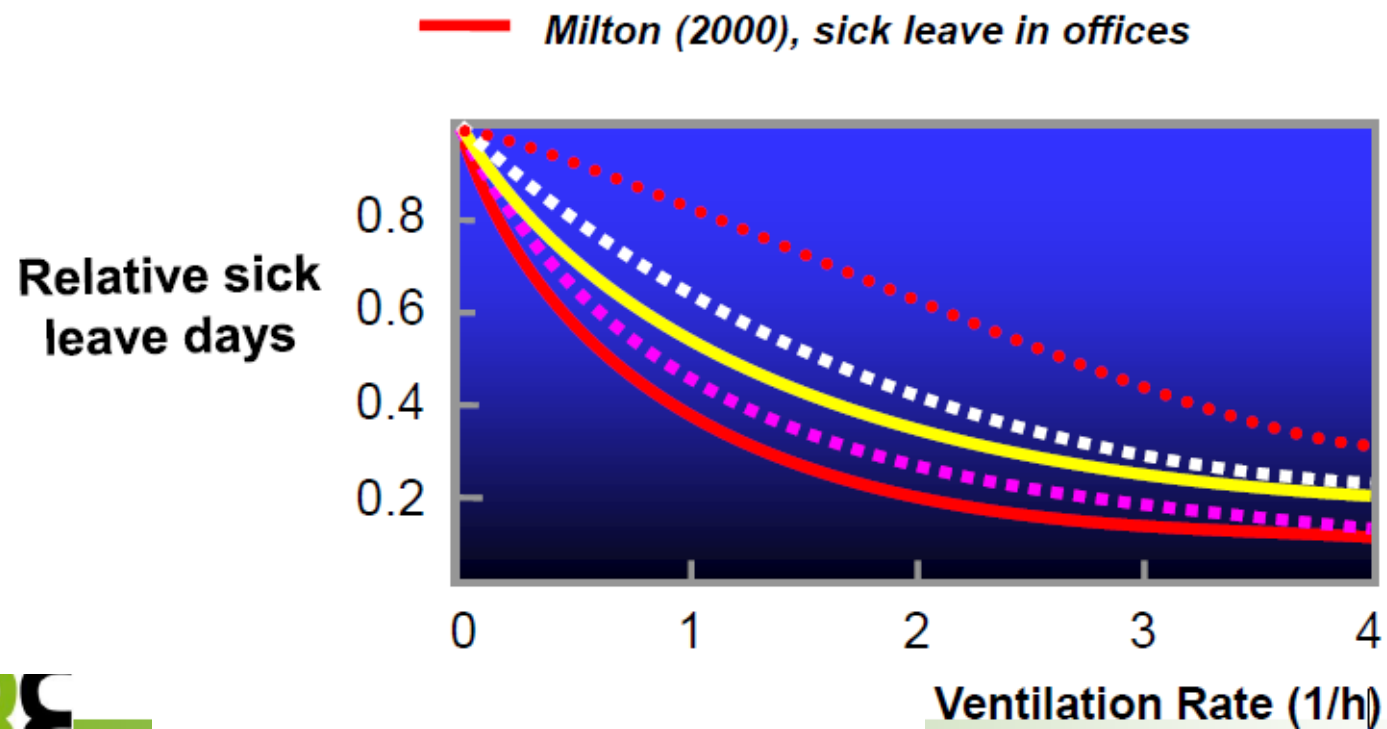
Eco-certification leads to higher rents

What are the benefits to Asset managers

- Asset protection and less down time**
- Rentable value retention**
- Cost control**
 - resource efficiency
 - lower energy consumption
 - waste minimisation
- Trust building**
 - enhancing brand value
 - promoting a positive culture among clients, employees and other stakeholders
- Risk management**
 - complying with regulations
 - avoiding safety and environmental incidents

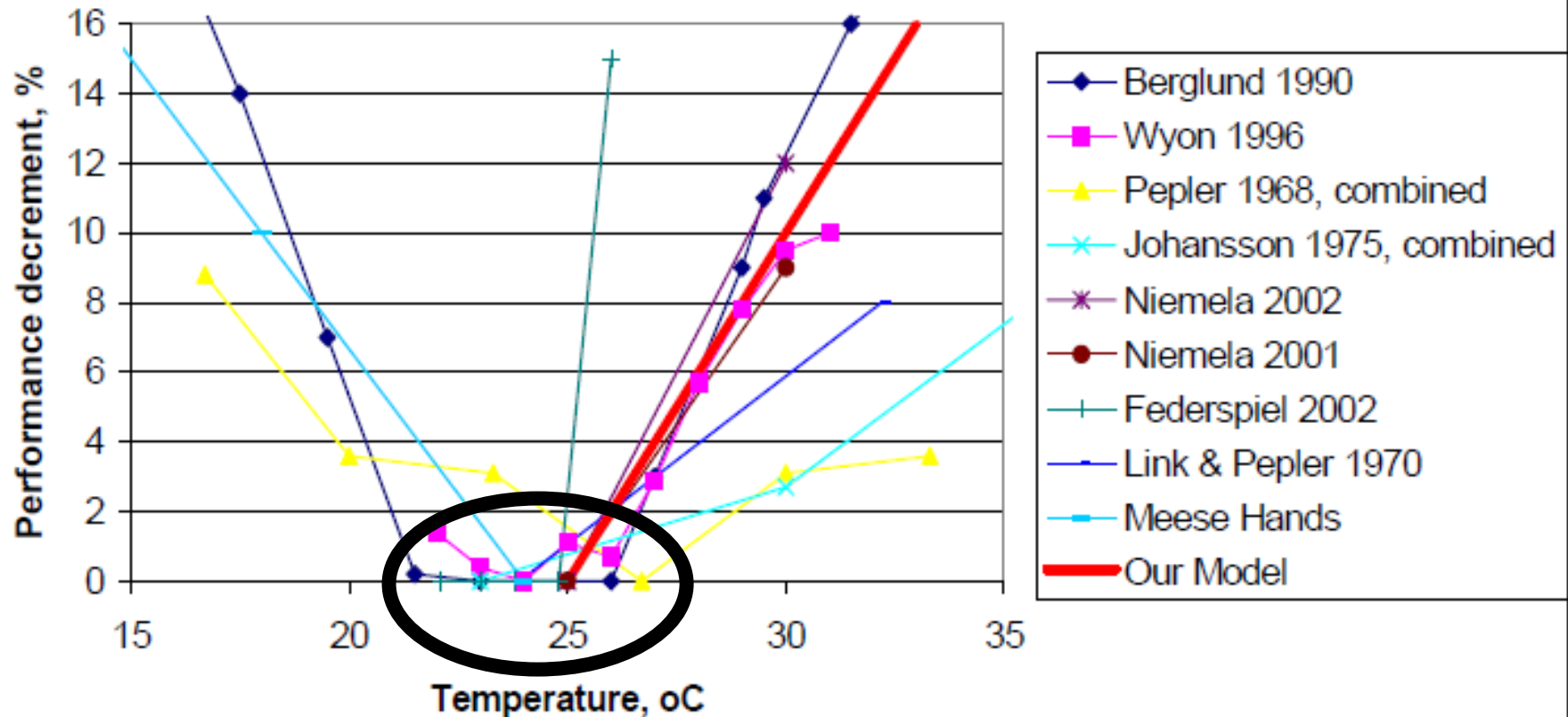
What are the benefits to the occupier

- Productivity
- Short term sick leave or illness inflicted by infectious diseases vs. ventilation rate



What are the benefits to the occupier

– Productivity maximised





- **Consists of five buildings**
- **All linked to each other**
- **Different dates of inception**
- **Oldest building used to be a chocolate factory**



KEY FACTS

- BREEAM rating: Outstanding
- Score: 87.07 %
- Size: 18,939 m² SHON
- Stage: Post-Construction
- BREEAM version: 2009

OVERVIEW OF ENVIRONMENTAL FEATURES (1)

- Existing structure and facade conservation
- Thermographic survey to prevent air leakage paths
- Roof terrace insulation and waterproofing
- Thermal evaluation and optimisation
- New geothermal cooling system
- Replacement of all luminaries
- Implementation of photovoltaic panels, solar thermal panels, 2 wind turbines and urban solar lightings.
- Life cycle cost analysis for design decisions
- Lighting and thermal zoning implemented
- HVAC systems adapted to ensure maximum indoor air quality
- Low VOC emission finishing

OVERVIEW OF ENVIRONMENTAL FEATURES (2)

- Review of all acoustic bridges
- landscape management plan
 - Preservation of the gardens
 - Enhancement of the landscape with an ecologist
 - survey (planting terrace, flower meadows)
- Implementation of a Cycle racks and amenities for building users
- Close commissioning management
 - Building user guide produced with the tenant and published on the building website
- On-site sustainable water treatment
 - reuse of the treated water within the toilets
 - Leak detection system and sanitary supply shut off valves
- New tailored BMS
- Waste locations reviewed and new composting device



**MICHEL JANET, MANAGING DIRECTOR,
WERELDHAVE NV FRANCE SAYS:**

“BREEAM certification is a requisite to keep our properties competitive and sustainable whilst ensuring the durability of the tenant in the premises.”

Thank you for listening

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<https://uk.linkedin.com/in/andylewry>

Whole Life Performance Plus (WLP+)

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Project aim



Develop a software model and commercial service for optimising internal building conditions to improve productivity by at least 10%, reduce energy use by 30%, and improve occupant comfort and wellbeing.

Objectives are to:

- Empirically validate the link between IEQ and staff productivity
- Test the solution in a number of trial commercial buildings
- Develop a software-based supervisory control and reporting solution operating in a cloud environment

Further Details



www.lcmb.co.uk

www.wlpplus.com



Innovate UK



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