

### "Mind the Gap"

Dr Andy Lewry, BREEAM Existing Buildings Team

For the ROMANIAN CONFERENCE ON ENERGY PERFORMANCE OF BUILDINGS

7-8 June 2018

Part of the BRE Trust







#### **Building Research Establishment**

A world leading centre of expertise for the construction industry providing:

- » Research
- » Consultancy
- » Information services

to customers worldwide



#### **Corporate and Management Structure**





#### Our Staff...

- Over 650 staff
- Over 400 professionally qualified
- Many national and international experts
- An integrated team of professionals

#### ...people at the heart of our business



### Management of real estate investments

### Aims to:

- maximising property value
- return on investment

### via

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



### **High Performance Buildings**

Generates maximum profit via

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

#### Bridging the building performance gap

- Building operators need to understand both predicted and actual building energy use
- Buildings rarely perform as well as their designers predicted
- Energy consumption and costs can be as much as double what was expected
  - A recent Innovate UK report up to 450%
- Difference has become known as the **performance gap**
- Includes compliance gap but this is smaller up to 100%



# **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



# **Operational performance**



# Effect on the asset and its value

- Deterioration of asset and rentable 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
- Loss of reputation

# **Anecdotal evidence for causes**

- Issues with the management structure and governance
- Lack of maintenance due to resource and skills shortage
- Limited data
- Lack of practical solutions and their costs

### The real truth is nobody knows



#### **BREEAM In-Use**

Building Owner 'Asset Performance'

Part 1 The performance of the asset's built form, construction, fixtures, fittings and installed services

Part 2

Building Manager 'Building Management' Assessment of how the building is managed

Part 3

**Building Occupier** 'Occupier Management' The management of building users and services. 'BREEAM In-Use allows us to be sure that each technical device will be properly maintained and operated 365 days per year.'

Christophe Garot, Group HO Environmental Sustainability, Unibail-Rodamco

'Using BREEAM (...) means we focus not only on the buildings' initial design and construction phase, but we also keep in mind the best, most efficient maintenance and upkeep once the facilities are in use.'

Rosa López, Environmental Sustainability Manager Neinver

'Greening our portfolio over the next two years is not only environmentally the right thing to do, it also makes sound business sense.'

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# New research project :



# **Objectives:**

- Scope proposed buildings and choose a suitable exemplars
- Collect and analyse of metered, asset and energy audit data
- Propose reasons for the performance gap
- Produce operational and asset recommendations
- Model the benefits
- Produce a methodology that can be rolled out to a larger number of buildings
- Propose a second phase covering more office buildings
  - covers the breath of the building stock in this sector
  - produces a tested generic methodology

# **BREEAM**<sup>®</sup> Initial data

	Exemplar	A	В	C	D	E
Metered data						
2017 unadjusted gas data KWh/yr.		1,098,666	1,062,816	95,184	212,242	4,176,555
Total 2017 electricity KWh/yr.		775,445	1,675,704	788,268	775,445	9,424,437
Total unadjusted usage KWh/yr.		1,874,111	2,738,520	883,452	987,687	13,600,992
Total unadjusted usage KWh/m²/yr.		340	268	527	340	264
Asset rating & ISBEM Version		79 D - 5.3.a	96 D - 5.3.a	58 C - 5.3.a	114 E - 5.3.a	61 C - 5.3.a
building environment		Air Conditioning				
floor area (m <sup>2</sup> )		5515	10211	1676	2906	51608
Total KWh/m²/yr.		118	97.0	87.6	146.7	89.2
Lift energy KWh/m <sup>2</sup> /yr.		8.80	10.12	19.87	16.29	5.90
Total asset model KWh/m²/yr.		127	107	107	163	95.0
Performance gap (%)		267	250	491	209	277



# **Observations:**

- The performance gap was confirmed as real and in the range 209 to 491%.
- The values observed were similar to that observed by previous studies which were between 200 and 450%.
- There was no relationship between the perceived operational status and that observed

# **Conclusions:**

- The initial data collection was difficult
- The remaining data required for the first phase will be collected or measured on-site
- Current data collection and storage processes are ineffective due to the lack of management and a dedicated resource.
- The second stage will concentrate on investigating both the asset, operational and management features of 5 buildings in order to obtain more granularity in terms of key performance aspects/indicators and the underpinning reasons/drivers for the poor performance.

# BREEAM<sup>®</sup> Thank you for listening

Name of Presenter: Dr. Andy Lewry

lewrya@bre.co.uk

#### +44 (0)1923 66 4359 or +44 (0) 7774 161 685

Or join me on LinkedIn

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



The Value of Sustainability

#### Dr. Andy Lewry - CEng, CSci, FIMMM, CEnv, MSocEnv, FEMA

Principal Technical Consultant, BREEAM Existing Buildings Team

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# BREEAM<sup>®</sup> Portfolios, cities, or individual assets





















# BREEAM<sup>®</sup> Flexibility, for your country & purpose



# **BREEAM**<sup>®</sup> 5 lifecycle certification stages



### BREEAM® Assets elements we look at

#### Holistic & scientifically underpinned assessment



### Challenges for Real Estate Clients

- Increasing profit
- Maintaining competitive edge
- Driving asset yield
- Minimising voids
- 'Being the best on the street'
- High productivity workspaces.



#### The value of a third party certification

- Assurance for clients, investors & other stakeholders
- Comparability across building types and countries
- Based on sound science and standards
- One step ahead of legislation and industry best practices
- Independent, third party certification: overseen by UKAS
- Owned by the BRE Trust: income and data fed back into research and development schemes

#### **Direct Savings & Payback**

'It was important for **10 Downing Street** to have an **independent and impartial assessment** of the success of the environmental and sustainable initiatives undertaken, and their effectiveness in reducing energy consumption and cost.' *Howard Parsons, Downing Street.* 

'We were keen to take this route at **Kings Place** not only as a challenge but to improve our sustainability performance, drive our services towards a outstanding level and drive our practices beyond the industry standards. **We have saved 10% electricity and 35% gas through targeted initiatives**.' *Sylvain Thouzeau, Savills (UK) Ltd.* 

**'Kanyon** aims to be a pioneer in reducing energy use, water consumption and waste. **Investing in sustainability has resulted in 11% annual savings in energy costs**. BREEAM was the most suitable tool for assessing the environmental aspects of our design and building management performance, and will guide us in improving our sustainable projects. Achieving high BREEAM scores helps & encourages our tenants and staff to participate in sustainability *activities.' Tuncer Kinikli, Kanyon FM.* 



Increased yield with lower risk

'From an investment perspective, it also bolstered marketability and reduced obsolescence risk. On launch, we were able to advertise the letting at £65 per square foot – an improvement of some 20% on our expectations when we first undertook the project.'

Dr Steve Waygood, Chief Responsible Investment Officer Aviva Responsible investment update, Spring/Summer 2015

#### Benefits

- Asset Protection
- Higher Rentable Values
- Lower Void Times
- Avoids Lease Discounting



### BREEAM<sup>®</sup> Building with better value



Adapted from 'Business case for green building', World Green Building Council report, 2013 and 'Towards a greener future', DLA Piper report, 2014,

Data based on Offices, does not necessarily apply to Retail



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Part 3

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#### **Understanding and improving performance**

Establishing current operational practices

Formalising processes

Recognising and implementing best practice across portfolio

> Working towards efficient maintenance of certification & create improvement plans



#### **BREEAM In-Use**

Comprehensive: asset and management

Asset Performance (Part 1) – Building owner

• Performance of asset's built form, construction, fixtures, fittings, installed services

**Building Management** (Part 2) – Building manager

Assessment of how the building is managed

**Occupier Management** (Part 3) – Building occupier

• Management of building users and services



#### **BREEAM In-Use**

#### Holistic: 9 environmental categories





#### **Continual improvement**

Yearly renewal cycle encourages continual performance improvements...

... allowing for on-going measurements and assisting in making improvement decisions.





#### **Productivity and talent retention in offices**





*'Recruitment and retention were two of the main drivers for the BREEAM rating - it was appropriate for the tenant's staff.'* 

benefits

Quote from BSRIA 2012 publication



#### Profit from refurbishment





SOCIETE FONCIERE LYONNAISE

Eric Oudard

"Our existing tenants were happy to pay an uplift on their new longer lease above the costs of the refurbishment being undertaken. We effectively profited from the project that we implemented" Eric Oudard, Technical Director, SFL Real Estate Paris

#### 'Highest ever rated BREEAM Fit-Out demonstrates excellence in workplace design

In December 2016, Landsec, the largest commercial property company in the UK, moved their office headquarters to 80-100 Victoria Street, a building constructed in 2006 that is part of their property portfolio in the Victoria area of London.

"Landsec was committed to BREEAM Outstanding to demonstrate the company's commitment to sustainability, and to provide a framework to support the delivery of high quality space which would enable the company to achieve its ongoing objectives in-use."

Caroline Hill, Head of Sustainability, Landsec

Using the BRE IMPACT methodology, the project assessed and achieved an embodied carbon intensity which is almost half of comparable projects, with an 11.5% embodied carbon reduction made in delivery against initial designs.





### **BREEAM Refurbishment & Fit-out**



- Dedicated new scheme for the assessment of refurbishment and fitout projects including:
  - Fit-out of local services and interiors
  - Interior refresh projects
  - Base build fabric & service upgrades
  - Whole building refurbishment



#### Better for your investments



"Greening our portfolio over the next two years is not only environmentally the right thing to do, it also makes sound business sense."

Andrew Vaughan, CEO, Redevco

"All new acquisitions must have a BREEAM rating"



**Michael Bovello** 

#### 🚝 REDEVCO



### CBRE

BREEAM is used to guide the Heuvel Eindhoven team in continuous improvement of the centre.

'BREEAM has guided us to provide better quality for our tenants and consumers, at a lower environmental impact, against lower costs' CBRE



#### The way forward

- Now seen as brown discounting
- Sustainable credentials come hand in hand with top level assets
- BRE is:
  - actively engaged with a number of industry partners to update the existing, empirical body of evidence
  - exploring ways of communicating value to a wider selection of stakeholders
  - exploring the feasibility of creating an index of publicly listed companies who have a commitment to BREEAM within their strategy
  - intending to explore comparative yields and other measures in addition to the standard metrics



