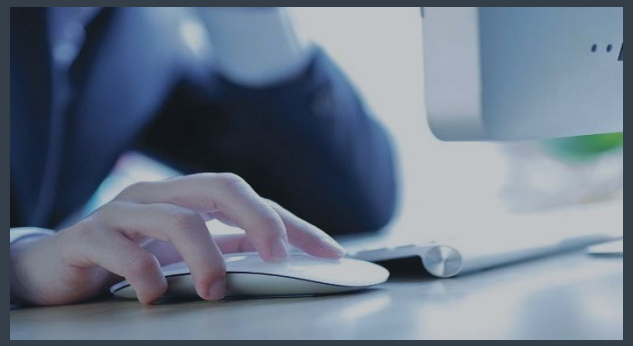
UNIVERSITY COLLEGE
OF ESTATE MANAGEMENT

Achieving excellence in a sustainable university refurbishment

Aled Williams (Dean – Research, Innovation & Partnerships)



UCEM Context

- Founded in 1919 by **Royal Charter**
- Awarded **TDAP** in 2013
- **QAA Higher Education Review** (Alternative Providers) in 2016
  - Met expectations
- Leading provider of **supported online learning** for existing and aspiring real estate & construction professionals worldwide
- **Degree programmes** at Foundation, Bachelor and Masters levels
  - Degree Apprenticeships and Level 3 Apprenticeships
- Over **3000 part-time students** from **over 100 countries** benefitting from our degrees to meet industry needs

UCEM Vision & Core Purpose

2019 Vision

- To be the '**leading, vocational, online university'.**

<u>Core Purpose</u>

- ensures that we provide truly **'accessible, relevant and cost effective education, enabling students to enhance careers, increase professionalism and contribute to a better built environment'.**

- One Mission, One Team

Sustainability Policy

Our strategic ambition is to develop and implement genuine sustainability credentials as a socially responsible organisation by:

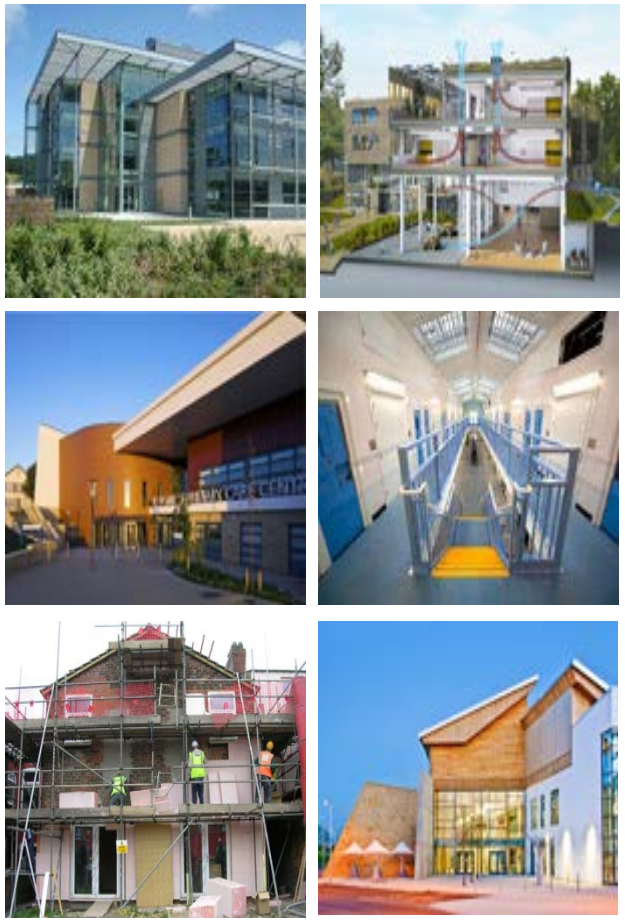
- ensuring our students are conversant in best practice to nurture sustainable built environment.
- making sustainability a central focus for UCEM at organisational, departmental and individual levels through driving forward long-term and effective behavioural change.
- establishing UCEM as a leader in the sustainability agenda through actively influencing industry and conducting research.

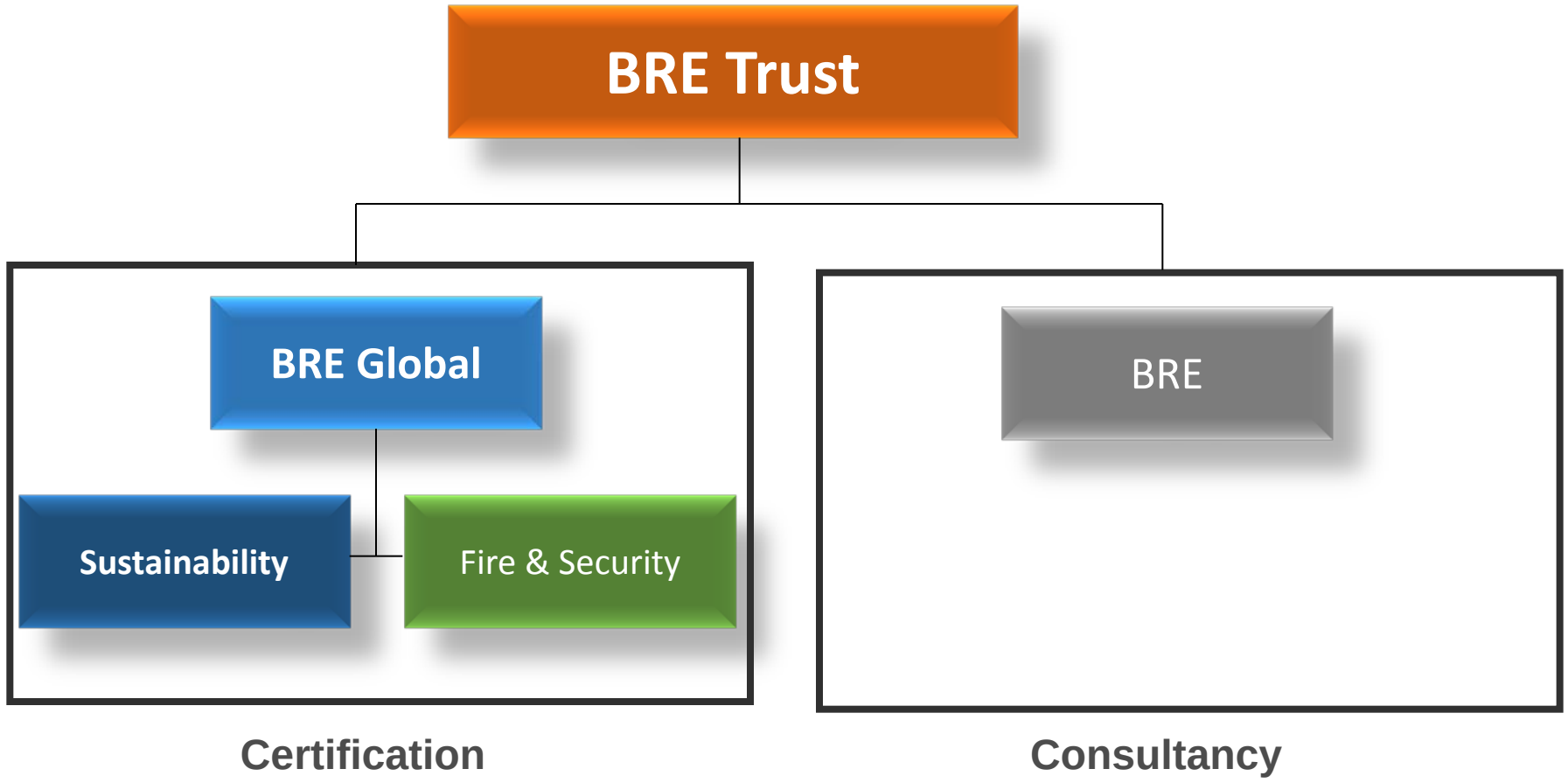
BREEAM UK Non-Domestic
Refurbishment and Fit-out 2014

James Honour RIBA
BREEAM UK RFO Scheme Manager

Agenda

1. Background & benefits of BREEAM RFO
2. How does it work?
3. How to engage with the scheme
4. Technical overview of the scheme
5. Refurbishment scenario session

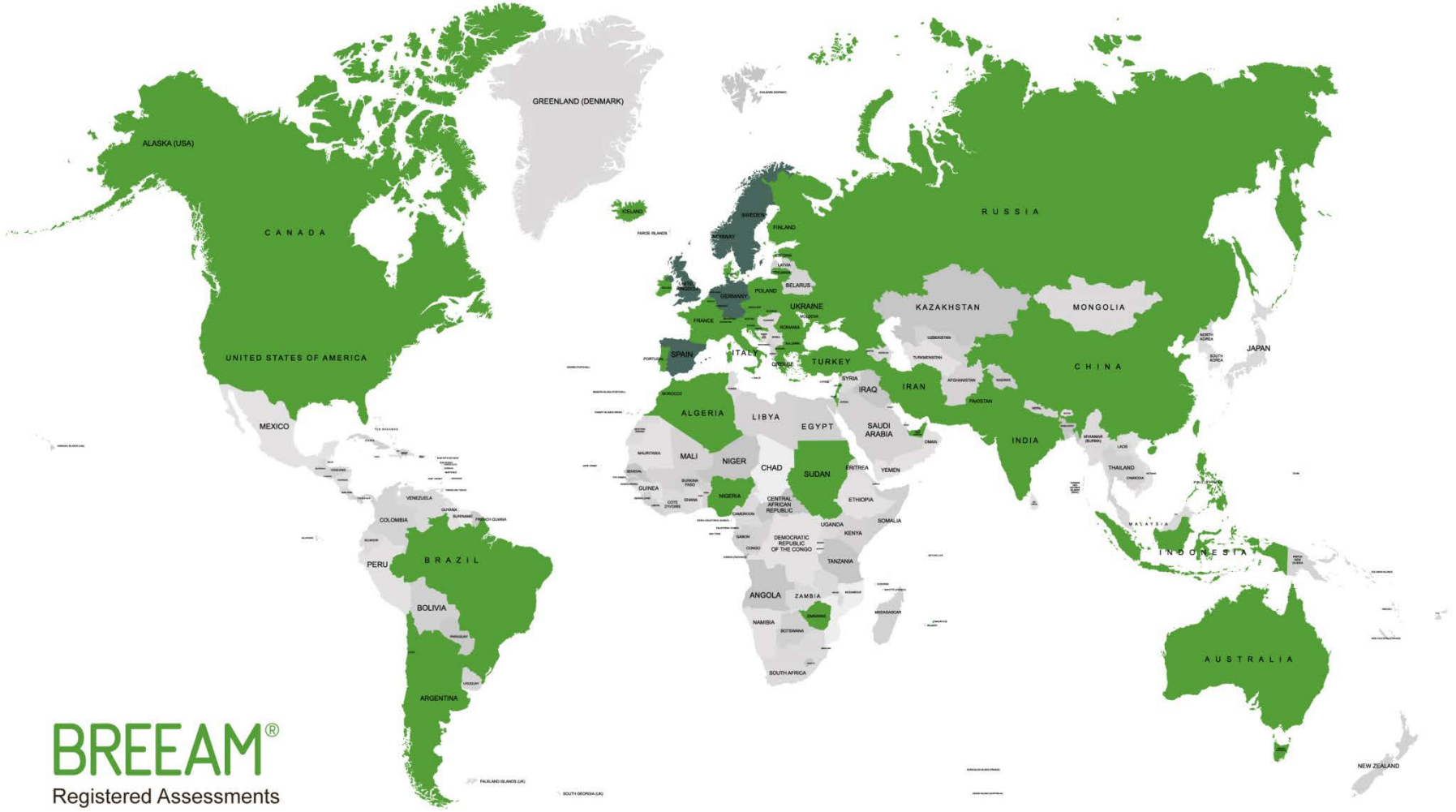



BRE Trust
BRE Global
Sustainability
Fire & Security
BRE
Certification
Consultancy

What is BREEAM?

- The world's **longest established** and **most widely used** environmental assessment method for buildings
- Launched in **1990** (First Offices, then Industrial, Retail etc…)
- Driven and first piloted by London market following 80's energy crisis
- Process and **outcome focused**
- Robust, **evidence based** criteria
- Drives **innovation** and standards above the regulatory minimum
- Credible label showcasing **CSR**

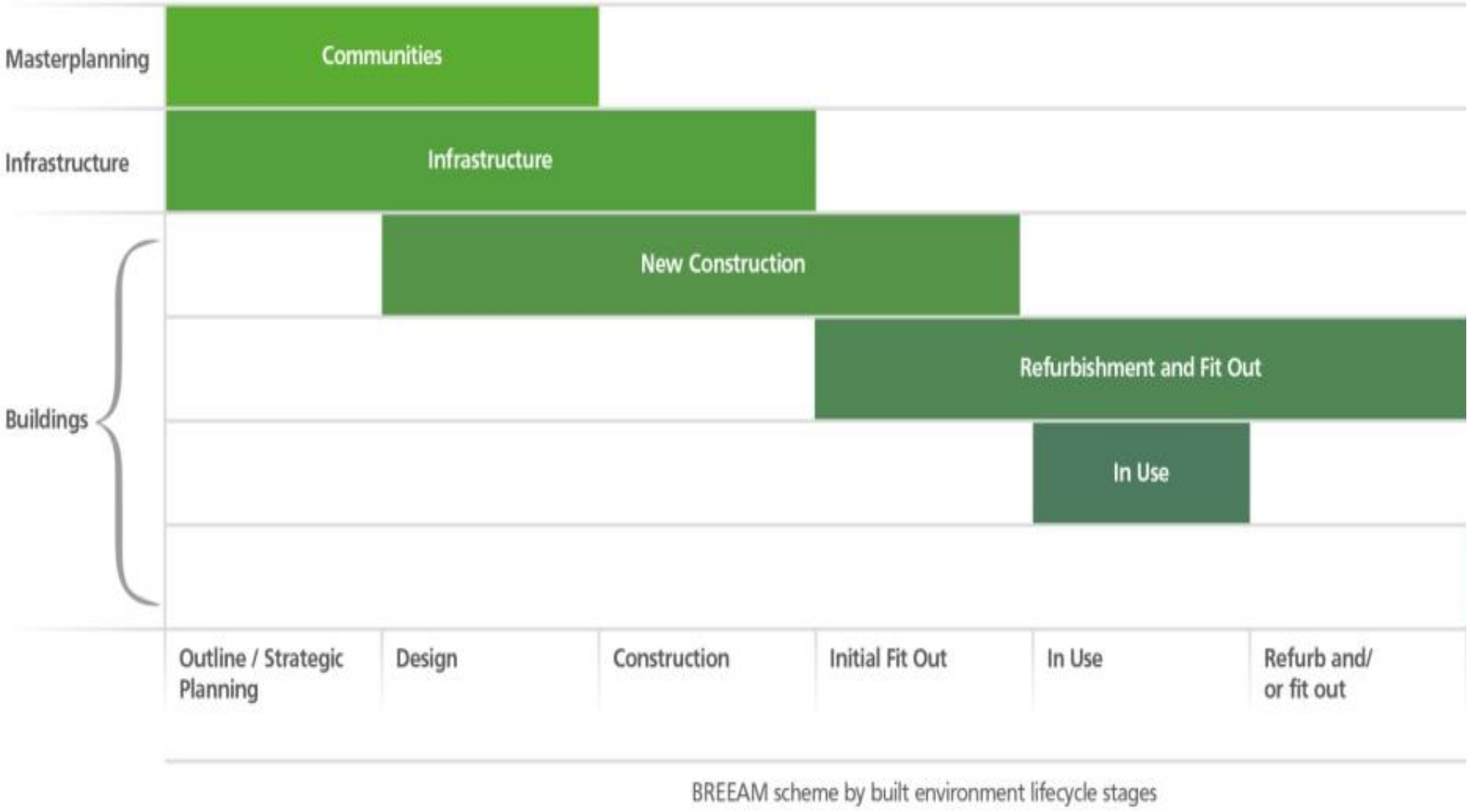
Around the world … over 540,000 certified buildings



BREEAM®
Registered Assessments

…across 77 countries, with 2m+ registered

BREEAM Family - Whole Life Cycle



BREEAM scheme by built environment lifecycle stages

Key headlines – Non-domestic refurbishment in context

18% - of UK emissions are from non-domestic buildings

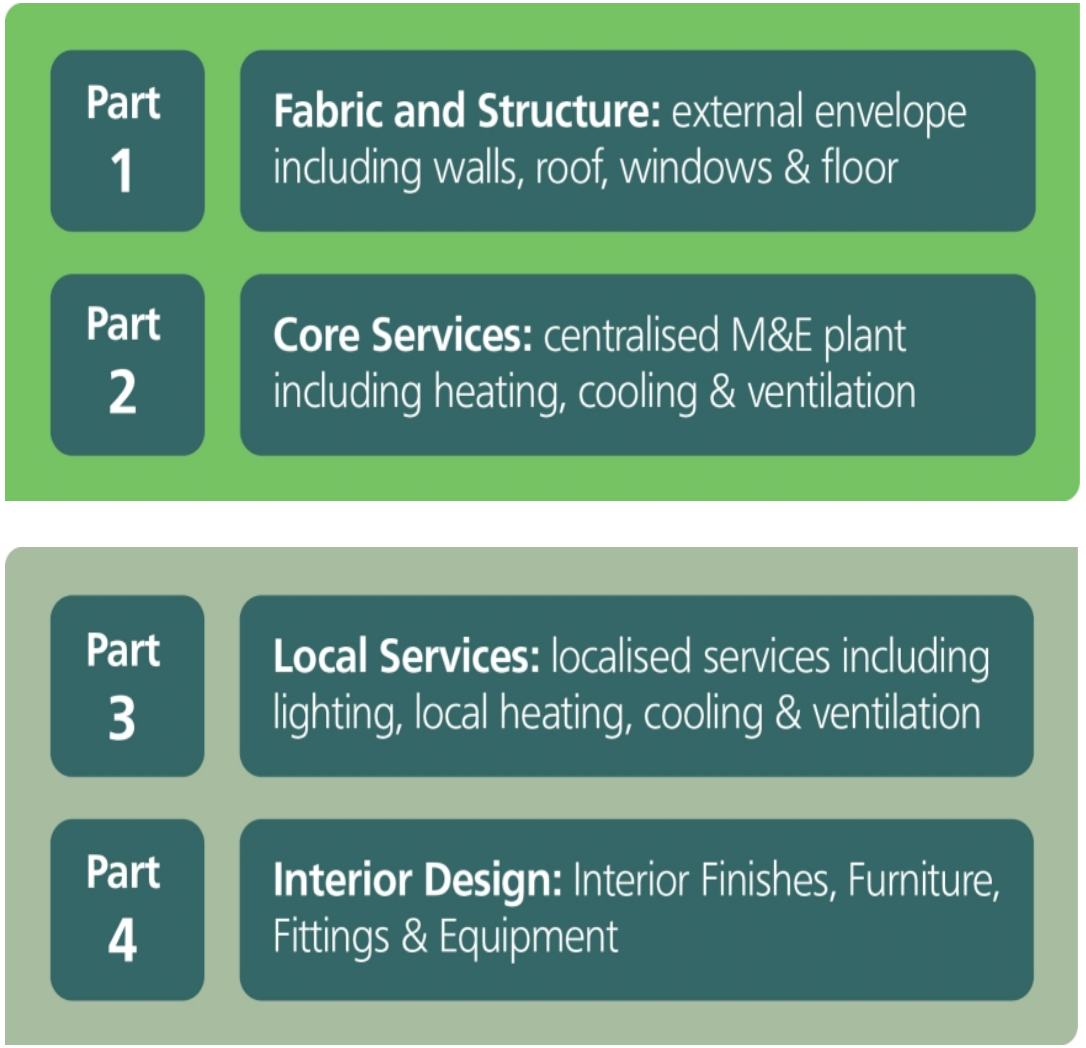
90% - of properties are EPC ***'Band C'*** or worse

62% - of commercial properties are tenanted

BREEAM UK ND Refurbishment and Fit-out

First **dedicated** BREEAM version specifically for refurbishment and fit-out projects with a focus on what can be influenced.

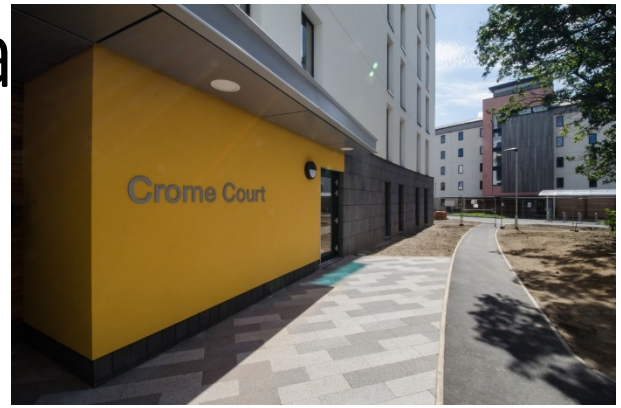
Scope of each part



Base build issues

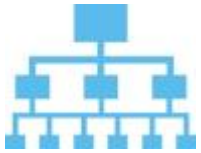
Fit-out related issues

Example assessments: University accommoda



Internal fit-out e.g. Wing	Replacement of M&E plant	Fabric upgrades	Comprehensive refurbishment
Part 3 & 4 assessment	Part 2 only assessment	Part 1 only assessment	Part 1-4 assessment

BREEAM UK RFO 2014 - Environmental sections



Management

Overall management policy, commissioning site management and procedural issues

Health & Wellbeing

Indoor and external issues affecting health and well-being

Energy

Operational energy and CO_2 issues

Transport

Transport-related CO_2 and location-related factors

Water

Consumption and water efficiency

Materials

Environmental implication of building materials

Waste

Reducing waste during both construction works and operation

Land Use & Ecology

Ecological value conservation and enhancement of the site

Pollution

Air, noise and water pollution issues

Benefits of BREEAM Refurbishment and Fit-out

- Only assess aspects which are within **your scope of works**
- Provides **comparability** between projects
- Empathetic with **historic buildings** e.g. grade 1, 2, 2* listed buildings
- Assists with **CSR** obligations
- **Get ahead of your competition** & showcase industry best practice
- **Reduced running costs** and risk as a result of minimising water use, energy use, CO_2 emissions and waste
- Enhance occupant comfort - **increase productivity**

Adding value

"Investment costs not as high as perceived"

World Green Building Council report 2013

"Potentially significant life cycle cost savings"

BSRIA: The Value of BREEAM report 2012

"BREEAM is the preferred certification body across Europe"

DLA Piper: Towards Greener Future 2014

"Increased value, suggested higher staff productivity levels"

RICS: Supply, Demand and the Value of Green 2012

‘The value of BREEAM’ – Briefing Paper 2016

- Average CO2 saving is **22%** with BREEAM
- BREEAM ‘Excellent’ **33%** carbon emissions reduction expected
- Operational costs savings from **2%** higher capital costs can be paid back within **2-5** years
- Green certified buildings sales prices increase by up to **30%** - *World Green Building Council 2013*
- Staff costs account for **90%** of business’ operating costs

Case study – Aztec West business park, Bristol

- Aztec West – first RFO – Office in Bristol
- Awarded design stage ‘Very Good’ rating for Parts 2 and 3
- £5 million, 30-week, 51,000 square feet project
- Improved EPC rating to achieve an EPC A.
- New steel-frame reception extension
- New toilet facilities, floor, ceiling & wall finishes to extension
- Replaced window and curtain walling
- Replaced the mechanical and electrical systems
- Installed photovoltaic panels on the ro
- Enhanced the airtightness of the build
- Improvements to the site landscaping.

Aviva Investors, One Southampton St, Covent Garden – BREEAM 'Excellent'

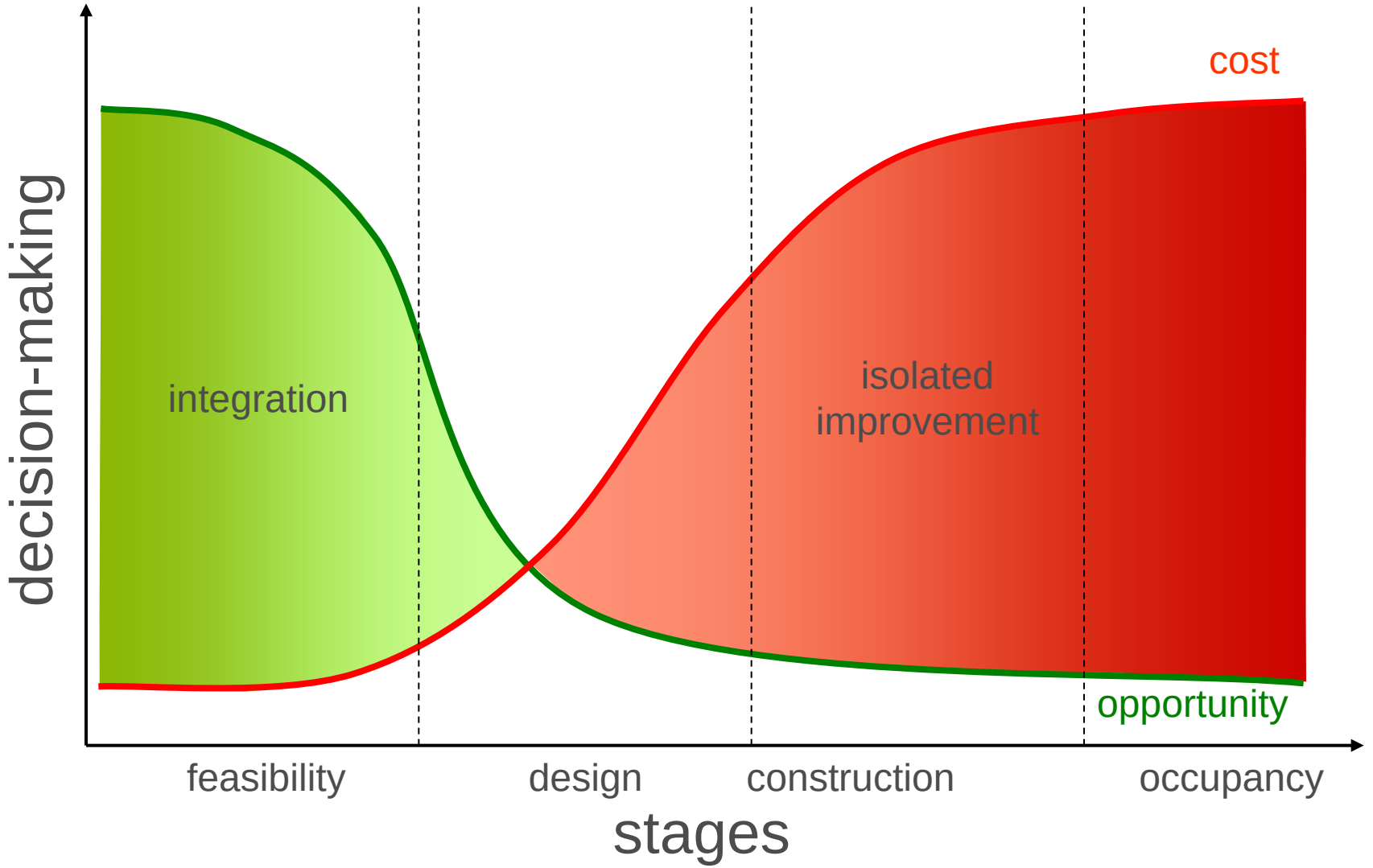
"All new acquisitions must have a BREEAM rating"

"BREEAM is a strong rating tool that helps sound, responsible property investment"

"Tenants will discard buildings that don't have BREEAM ratings"

Michael Borello, Aviva Investors, MIPIM UK 2014

Importance of engaging with BREEAM early



Management – Early collaboration and communication

- **Man 01 - Project brief and design**
  - Stakeholder consultation
  - Sustainability Champion

- **Man 04 - Commissioning and handover**
  - Commissioning & testing schedule & responsibilities
  - Commissioning building services
  - Testing and inspecting building fabric
  - Handover - BUG and training schedule

- **Man 05 - Aftercare**
  - Support - meetings & on-site training & data collection
  - Seasonal commissioning – occupation 1 year – test & review
  - Post occupancy evaluation

Health and Wellbeing – Early considerations

- **Hea 01 – Visual comfort**
  - Daylighting - window sizes – glass to floor area ratio
  - View out - % of floor area 7m from a window wall
  - Internal & external lighting levels, zoning & control
- **Hea 02 - Indoor air quality**
  - Minimising sources of air pollution - IAQ plan, ventilation & VOCs
  - Adaptability – Potential for natural ventilation – ventilation strategy
- **Hea 04 – Thermal comfort**
  - Thermal modelling, zoning and controls
- **Hea 05 – Acoustic performance**
  - Sound insulation, indoor ambient noise level & reverb times

Design Stage issues – Other early considerations

- **Energy strategy** – Design & monitoring
- **Water** – Consumption, monitoring & leak detection
- **Pollution** – Refrigerant impact, NOx emissions, light & noise

Reducing potential costs.

Thank you.

www.breeam.com/ndrefurb

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GreenBookLive www.greenbooklive.com

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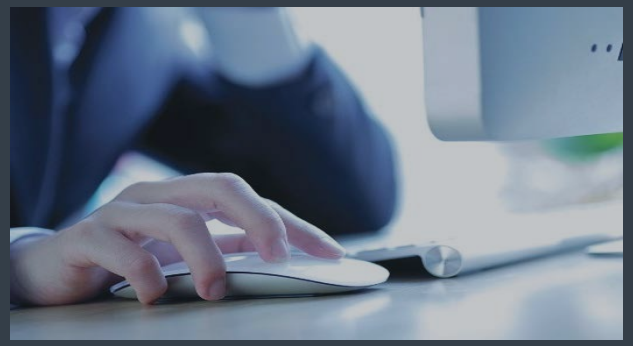
Rob Callaghan – Sustainability Officer

Case Study – ‘Horizons’



Realising your potential in the Built Environment

Before Refurbishment

Before Refurbishment

After Refurbishment

After Refurbishment

Project Management and Collaboration

Challenges and Positive Outcomes

- Producing a sustainable building should be relatively easy … if you start with an unlimited budget and plenty of time.

- If you don't, then you must be creative
  - … you really have to think about how you can deploy particular solutions in a building that are much more cost and time effective.

Challenges and Positive Outcomes

- From the initial target of a BREEAM "Very Good" rating of 51.6% UCEM went on to achieve an "Excellent" rating of 73.1%

- All of this was achieved in around 6 months from the start of the works in January 2016 to UCEM taking occupation of the building in July 2016

Shortlisted for ‘Sustainable Project Of The Year – 2017 Construction News Awards

Case Study via the UCEM Online Academy

- You can take the tour for yourselves and learn more detail from the Case-Study and much more besides by visiting the UCEM Online Academy at:

https://onlineacademy.ucem.ac.uk/

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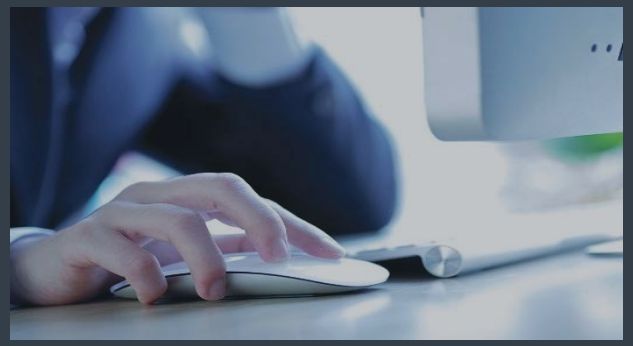
BREEAM Scenario – Exercise

15 minutes



RFO Scenario building

- **1970s University building:**
- Office
- Classrooms
- Small lab
- Lecture theatre
- Community space
- Computer suite
- Plant room

Questions

Man 01 - Project brief and design Stakeholder consultation

- Who are the Stakeholders?
- Who to speak to?
- What would you ask them?
- Who benefits?

- Consultation content – aspects to consider?

Man 01 - Consultation content – checklist - Answers

- Functionality, build quality and impact (including aesthetics)
- Provision of appropriate internal and external facilities Maintenance resources implications.
- Impacts on the local community, e.g. local traffic/transport
- Shared use of facilities and infrastructure with community
- Compliance with statutory consultation requirements
- Inclusive and accessible design
- Suitability of services from outside of the refurbishment area e.g. legionella prevention
- *Educational building types, minimum content also includes:*
- How the building/grounds best be designed to facilitate learning
- Changes to the internal layout and function appropriate?

- s containing technical areas or functions, e.g. laboratories, workshops etc., minimum content also includes:
- The end users broad requirements for such facilities, including appropriate sizing, optimisation and integration of equipment and systems.

Questions

Man 05 – Aftercare

Post Occupation Evaluation (POE)

– Design, room comfort and use of building feedback

- What would you check?

POE - Check brief is met & issues raised are included

Answers

POE needs to cover:

- A review of the **design intent** and **construction process** (review of design, procurement, construction and handover processes).
- **Feedback** from a wide range of **building users** including facilities management on the design and environmental conditions of the building covering:
  - Internal environmental conditions (light, noise, temperature, air quality)
  - Control, operation and maintenance
  - Facilities and amenities
  - Access and layout
  - Other relevant issues.
- **Sustainability performance** (energy/water consumption, performance of any sustainable features or technologies, e.g. materials, renewable energy, rainwater harvesting etc.).