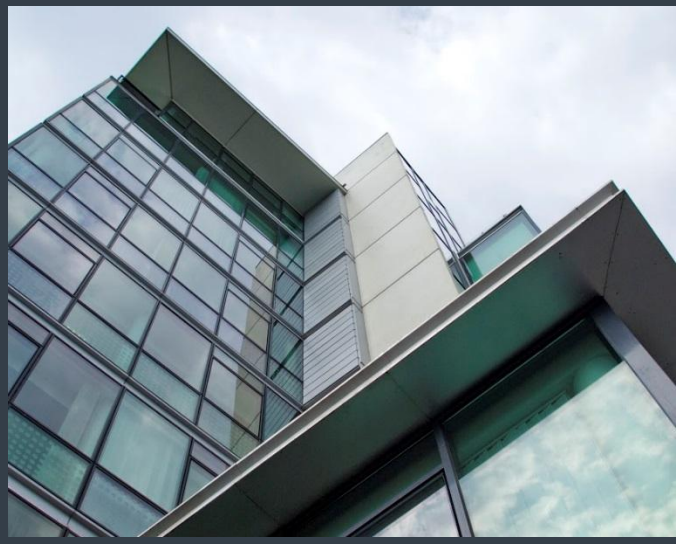
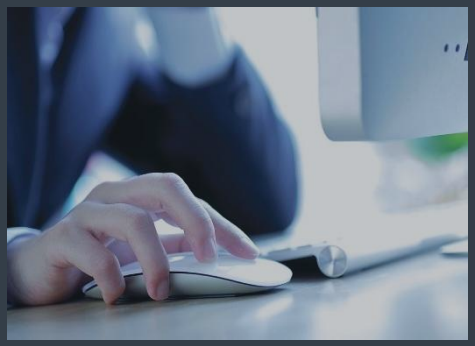
UNIVERSITY COLLEGE
OF ESTATE MANAGEMENT

Sustainability





15 January 2020

Realising your potential in the Built Environment

Sustainability

Summary Profile

Module Leader:

David Hourihan

MSc Pro Invest FSCSI FRICS FHEA

Industry

- Chartered Surveyor and specialist in office agency, retail asset management and valuation.
- 17 years of commercial real estate experience across the UK and Ireland.
- Previous positions with international firms including JLL and Colliers International.
- Acquisition and asset management instructions for clients including Société Générale, Metzler Bank**,** Mobil Oil, Scottish Widows, Aviva and British Land.

Research

- Member of the Investment Property Forum (IPF) Research Steering Group.

Academia

- Completed MSc in Property Investment at UCEM in 2008.
- Programme Leader for the MSc Real Estate.
- Module Leader for ‘Real Estate Investment’ module on the MSc RE and BSc REM programmes.

APC

- APC Chairman for the RICS.

Contents

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Aim

This programme aims to provide a broad appreciation of the core elements of sustainability – the economic, social and environmental factors.

Sustainability

By the end of the programme the learners will be able to:

1. List the three key elements of sustainability.
2. Represent graphically the key elements and how they overlap.
3. How these key elements need to be balanced.
4. List items of legislation/regulation.
5. List at least three ‘small’ ways we can all contribute to sustainability.

Sustainability

Sustainability is a mandatory competency that learners are required to demonstrate understanding to Level 1.

Level 1

The RICS defines it as:

'*Demonstrate knowledge and understanding of why and how sustainability seeks to balance economic, environmental and social objectives at global, national and local levels, in the context of land, property and the built environment.'*

Simply put the RICS requires its candidates, to have a broad appreciation of the core elements of sustainability – the economic, social and environmental factors.

1. What is 'Sustainability'?

The definition:
Sustainability is a broad term describing a desire to carry out activities without depleting resources or having harmful impacts. One of the best definitions of '*sustainability*' was defined by the Brundtland Commission, Our Common Future,1987 as:

'*…meeting the needs of the present without compromising the ability of future generations to meet their own needs.*'

Sustainability

Sustainable construction (also known as **green construction** or sustainable building), refers to the construction and the occupancy process that are environmentally responsible, and resource efficient throughout a building's life-span from location, design, construction, occupancy, operation, maintenance, renovation, and demolition.

Sustainability

A building is green or sustainable if it can maintain or improve:

- the quality of life, and harmonize within the local climate, tradition and culture, and
- the environment of the region;
- conserve energy, resources, and use materials that are recyclable, and, importantly, recyclable upon demolition;
- reduce the amount of hazardous substances to which humans, and other organisms are (may be), exposed to, harmed by, and
- the local and global ecosystem throughout the entire buildings life-cycle.

Sustainability

- Simply put sustainability requires a 'can-do' attitude (in essence a positive mindset), which will set the tone for overcoming the current 'business-as-usual' attitude.

- The Organisation for Economic Co-operation and Development (OECD) estimates that buildings in developed countries account for approx. forty (40%) percent of the countries energy consumption over the buildings lifespan.

- Sustainable construction, green buildings, are thus vital cornerstones for securing long-term environmental, economic, and social viability.

- Sustainable construction is **IMPORTANT.**

2. Exercise (30 mins)

- Split into 5 groups.
- Each group is given a construction material – Brick, Steel, UPVC Windows, Timber Roof Trusses and Concrete.
- Each group to identify the sustainability / environmental pluses and minuses in respect of production, life span, re-useability, demolition/disposal.
- Each group to share their findings with the entire workshop, group by group, at the end.
- 5 mins for the presenter to explain, 15 mins to investigate on laptops/phones, 10 mins to relay to the workshop.
- 30 mins total (max – it may take less than this).

3. Sustainability – 5 Target Issues

The LafargeHolcim Foundation for Sustainable Construction (a non-profit organization promoting sustainability), has identified five "target issues" that aim to clarify principles for sustaining the human habitat for future generations.

1. Innovation and transferability – Progress
2. Ethical standards and social inclusion – People
3. Resource and environmental performance – Planet
4. Economic viability and compatibility – Prosperity
5. Contextual and aesthetic impact – Place

3. Sustainability – 5 Target Issues

1. Innovation and transferability – Progress

- Innovative concepts regarding design, integration of materials and methods, structure, enclosure and mechanical systems.
- Advancements in the disciplines of architecture, urban and landscape design, civil, urban and environmental engineering, and other fields involved in the production of the built environment.
- Dissemination of knowledge, including project documentation, communication, education and training.

3. Sustainability – 5 Target Issues

2. Ethical standards and social inclusion – People

- Adherence to ethical standards in all phases of the project.
- Contributions to the formation of socially-viable environments, strengthening of shared values and empowerment of communities.
- Participation of stakeholders, including users, clients, neighbourhood affiliations, local authorities and non-governmental organizations.

3. Sustainability – 5 Target Issues

3. Resource and environmental performance – Planet

- Minimizing a project's ecological footprint and maximizing its positive impact on the environment; reduction of harm and increase of beneficial effects.
- Environmentally-conscious land use strategies and policies that preserve the natural landscape, while taking water and land reclamation into account.
- Emphasis placed on the use of renewable energy in construction, use and upkeep of the built fabric to reduce CO2 emissions and avoid toxicity.
- Innovative deployment of material resources in construction with an emphasis on cradle to grave cycles, mining existing building stocks and reduction of waste.

3. Sustainability – 5 Target Issues

4. Economic viability and compatibility – Prosperity

- Projects should cover operating costs over their lifetime and generate an acceptable rate of return.
- Integration of the project into the wider economic framework of local, regional, and global monetary flows.
- Demonstrate flexibility to adapt to future changes of user needs, ownership, laws, regulations, and economic fluctuations.

3. Sustainability – 5 Target Issues

5. Contextual and aesthetic impact – Place

- Interdependencies of landscape, infrastructure, urban fabric and architecture.
- Working with the given building stock through sensitive restoration, re-use or remodelling of the built environment.
- Inventive programming strategies in terms of use, multiplicity of functions, short-term flexibility and long-term adaptability.

4. Group Discussion - Why is sustainability important?

5 mins then 10 mins for each group to tell the room what they have come up with.

5. Sustainability need not be big

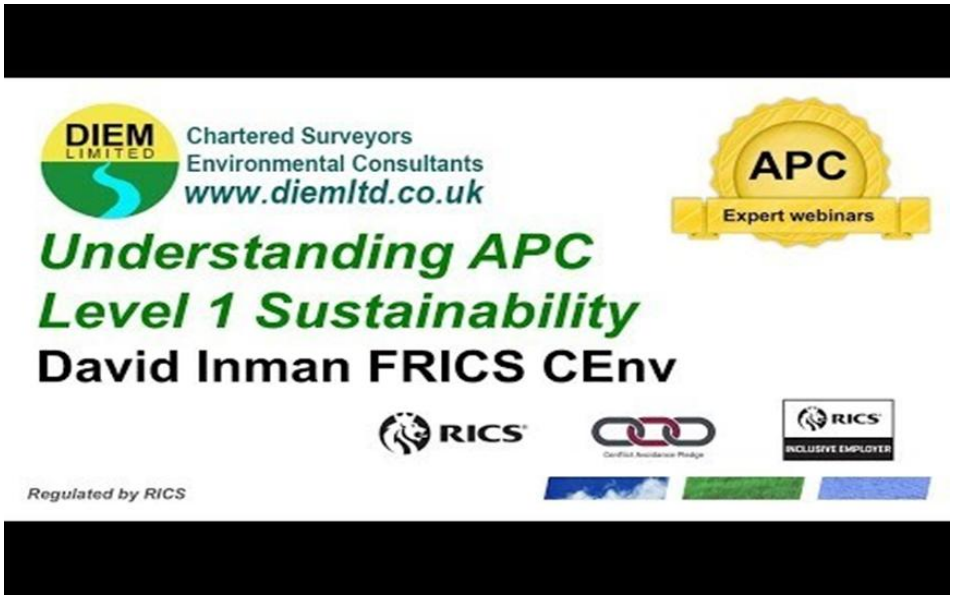
Sustainability need not be 'big'. It can also be achieved by the 'small', example:

- Avoid keeping materials in storage for too long as this ties up funds, leads to damage, spoilage and pilfering.
- Sixty (60%) of skipped material is packaging – work with suppliers to reuse packaging.
- Identify waste or demolition material that can be reused or recycled.
- Lime mortars are preferable to cement mortars – bricks bonded with lime mortar are easier to clean and recycle etc.

5. Sustainability need not be big

A wonderful 'small' application of sustainability is provided by the RICS:

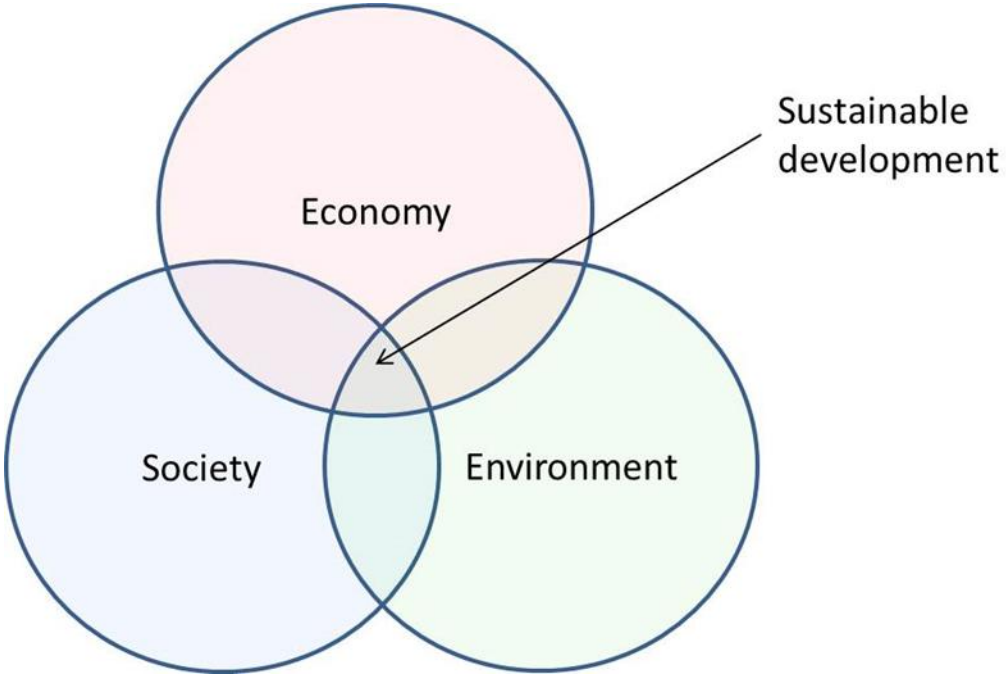
https://www.youtube.com/watch?v=FFU29jaflsI



6. Sustainability – Three Key Elements

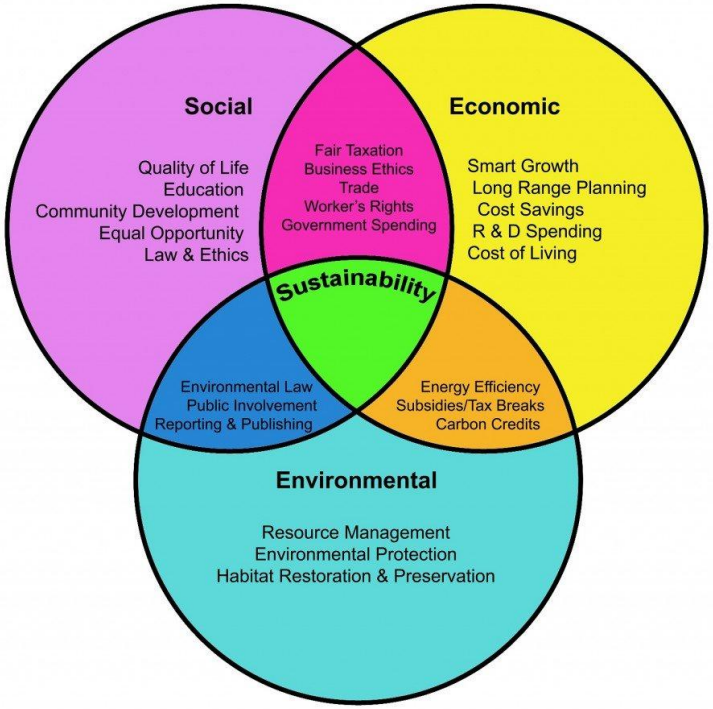
Thus sustainability is not just about building 'green'.

It involves three elements:



6. Sustainability – Three Key Elements

Balancing Social, Economic and Environmental Factors:



Sustainability

Some times a concept can be described by what it is not.

Sustainable construction should not:

- cause permanent damage to the natural environment or consume a large amount of resources during the construction, use or demolition process;
- cause unnecessary waste of energy, water or materials due to short life, poor design, inefficiency or low standard construction techniques;
- create dependence on high impact transport systems with their associated pollution;
- use materials from threatened species / environments.

Sustainability

Sustainability can not be considered in isolation.

Sustainable construction involves:

- breaking loose from the 'business-as-usual' mindset;
- 'disruptive' thinking – innovative thinking that creates new ideas;
- supple-chain management - knowing where the products originate. Delivery by a flock of carrier pigeons may be 'green', but what's sustainable about a 5,000 mile journey from China? (The vast majority of construction products, over £11 billion (2014 data) are imported!

Sustainability

Sustainable construction involves (cont'd):

- 'last planner' – lean construction techniques;
- whole life costing techniques, and, importantly,
- stakeholder participation from conception – 'cradle to grave' philosophy.

7. Legislation

- Ultimately the drive towards sustainable constructions must come from the top. In this case the Building Regulations: Part L.

- Part L of the Building Regulations deals with the conservation of fuel and power, and exists to guarantee the eco-efficiency of properties.

- Considerations covered by Part L include:

  - The maximum permitted area of windows, doors and other openings.
  - The structure's air permeability.
  - Insulation values of building elements.
  - Heating efficiency of boilers.

7. Legislation

Considerations covered by Part L include (cont'd):

- Insulation/controls for heating appliances & systems.
- Hot water storage.
- Lighting efficiency.
- Solar heat gains.
- Ventilation & air conditioning systems.

7. Legislation

Other less onerous codes that seek to promote and foster sustainable properties are:

- **Home Quality Mark** (http://www.homequalitymark.com), which supersedes the now defunct Code of Sustainable Homes.

- It 'supports' sustainable construction by awarding 'Star Rating' by quantifying benefits relating to:
  1. low energy bill;
  2. low mortgage and insurance;
  3. reduced maintenance;

7. Legislation

Home Quality Mark (cont'd)

4. amounts of natural light
5. access to local facilities and amenities
6. and numerous other factors.

7. Legislation

The Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015

New measures to improve the energy efficiency of certain private rented property in England and Wales.

The 2015 Regulations prescribes a minimum level of energy efficiency for private rented properties, being an energy performance indicator of band E, and prohibits landlords from letting out private rented properties which fall below that standard.

Part 3 provides that, subject to prescribed exemptions, the landlord of a sub-standard property must not:

(a) grant a new tenancy of the property after 1st April 2018, or

(b) continue to let the property after 1st April 2020 (in the case of domestic private rented property), or after 1st April 2023 (in the case of non-domestic private rented property).

7. Legislation

Building Research Establishment Environmental Assessment Method (BREEAM)

It is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. More than 250,000 buildings have been BREEAM-certified and over a million are registered for certification – in more than 50 countries worldwide.

BREEAM provides independent third party certification of sustainability performance of buildings, communities and infrastructure projects. Assessment and certification takes place at a number of stages in the built environment life cycle, from design and construction through to operation and refurbishment.

8. Sustainability Construction – A Quick Recap

Sustainable construction involves:

1. design and management of buildings;
2. materials performance;
3. construction technology and processes;
4. energy and resource efficiency in building,
5. innovative financing models;
6. improvement to existing contextual conditions;
7. interdependencies of landscape,
8. operation and maintenance;
9. robust products and technologies;

8. Sustainability Construction – A Quick Recap

Sustainable construction involves:

10. long-term monitoring;
11. adherence to ethical standards;
12. socially-viable environments;
13. stakeholder participation;
14. occupational health and safety and working conditions;
15. infrastructure,
16. urban fabric and architecture;
17. flexibility in building use,
18. function and change; and
19. the dissemination of knowledge in related academic, technical and social contexts.

8. Sustainability Construction

Sustainable construction is IMPORTANT!

9. Exercise (10 mins)

1. Recite the three key elements of sustainability.

2. Why does sustainability seek to balance these?

3. List down key sustainable legislation that affects your Pathway.

4. Provide at least three small ways we can all contribute to sustainability.

9. Exercise (10 mins)

Blind question students and seek response:

1. Recite the three key elements of sustainability.
   Answer: Economic, Social and Environmental

2. Why does sustainability seek to balance these?
   In order to maximise sustainability. If they are not balanced then sustainability can suffer

3. List down key sustainable legislation that affects your Pathway.
   Building Regulations: Part L.
   Home Quality Mark (voluntary)
   BREEAM (voluntary)
   The Energy Efficiency (Private Rented Property) Regulations 2015
   (Actually, there is little legislation – the market tends to lead standards ie BREEAM)

4. Provide at least three practical examples of sustainable practice within your Pathway.

Sustainability

We only had limited time to skim the surface of this very important and expansive subject. The following links provide further reading and research opportunities:

https://www.rics.org/uk/news-insight/future-of-surveying/sustainability/

(Note Valuers/Property Surveyors to look at the second of these two links)

https://www.rics.org/globalassets/rics-website/media/upholding-professional-standards/sector-standards/valuation/sustainability-and-commercial-property-valuation-2nd-edition-rics.pdf

Sustainability

Further reading and research opportunities (cont'd):

The College of Estates Management:

Defining a Profession: Core Competencies for Sustainability (slightly out of date but a good browse!):

https://www.ucem.ac.uk/wp-content/uploads/2016/01/sustainability_competencies_op-010713-web.pdf.

Sustainable Construction: Simple Ways to Make it Happen:

https://www.bre.co.uk/filelibrary/rpts/sustainable_construction_simpleways_to_make_it_happen.pdf

Sustainability

Further reading and research opportunities (cont'd):

Sustainable Construction Checklist:

http://constructingexcellence.org.uk/resources/sustainable-construction-checklist/

Lafargeholcim Foundation:

https://www.lafargeholcim-foundation.org/about/target-issues.

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