Sustainable Building and Services
A two-day comprehensive course

20-21 March 2014, London

THE Green REGISTER OF CONSTRUCTION PROFESSIONALS

Are you…

.... confused about Government sustainable construction legislation and how it will affect your company?

.... keen to learn how sustainability can help to meet your business priorities?

.... looking for independent, high quality training on sustainable construction practices?

Sustainable construction is no longer viewed as an 'alternative' method of building, and is increasingly being considered a fundamental approach to the way we design and construct our buildings. There is a great deal to learn and with new legislation being introduced at an ever-increasing pace, the challenge is to keep abreast of new developments and remain competitive.

The Green Register's highly commended Sustainable Building and Services two-day course has been perfected over the past twelve years to become one of the best ways to get up to speed with all the essential issues surrounding sustainable building practices. Completion of this two-day course enables you to apply for Green Register membership which has a host of benefits in itself, including substantial discounts on all Green Register courses.

Day One – an overview

A comprehensive look at all aspects of sustainable construction, from Relevant Sustainable Construction Legislation including the Green Deal, Sustainable Water Use in the UK through to Low Carbon Technologies, allowing you to take away a greater understanding of what works and what is just eco-bling.

Day Two – in-depth sessions

The second day provides an ideal opportunity to learn about subjects that are relevant to your profession and skills, choosing four workshops from a range of topics. These 90 minute sessions are at the advanced level and topics range from Breathing Construction in Detail, Specifying Sustainable Timber and Rainwater/Greywater Systems offering something for every discipline.

NEW - RIBA Advanced CPD status

When this course is combined with our new one-day *Sustainable Building & Services Masterclasses* course, these three days of training carry RIBA Advanced CPD status.

Sustainable Building & Services Masterclasses course

This one-day course offers the ideal opportunity to learn about subjects that are relevant to your profession and skills at an advanced level with topics ranging from Eco-retrofit to Plumbing for Architects amongst others. See our website for details **www.greenregister.org.uk**

Benefits of Green Register membership include:

- promotion of your business to a growing market for sustainable building services
- listing on our online Register and use of our logo on your stationery / website
- networking and knowledge-sharing with like-minded individuals
- substantial discounts on our regular training event fees
- discounts on bespoke CPD training

Cost: The 2-day course fee is £250 for non-members (£199 for members)
Book for all 3 days at a discounted rate! 3 day cost: £345 (£270 members)
Annual Membership of The Green Register starts at £30. To book your place, please request a booking form from us using the contact details below or book online at **www.greenregister.org.uk/events.php**

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Day One Content

Sustainable Building and Services Course

Introduction to The Green Register
Lucy Pedler

Sustainable Building – The Background Picture
Robert Borruso
This presentation provides an overview of the global picture, climate change, water use, resource depletion and health (all addressed in more detail in day two). The session aims to bring into focus the environmental issues that we as a society are facing and what role the construction industry is going to be asked to play in mitigating future environmental degradation. It is expected that for most attendees this talk will represent a short refresher course though many should acquire new knowledge during this introduction.

Relevant Legislation, incentives, policies and guidance
Lucy Pedler
This session explains some of the main drivers designed to encourage sustainable construction and development including:

- Revisions to Part L of the Building Regulations
- Retrofitting and The Green Deal
- The European Energy Performance Directive for Buildings
- RIBA 'Green Overlay to the RIBA Outline Plan of Work' and the 'Practice Integrated Sustainability'
- The Code for Sustainable Building/BREEAM/LEED
- Relevant Planning Policy

The External Envelope & Construction Types
Lucy Pedler
This presentation explores various construction methods used for the external envelope and how their performance relates to sustainable issues. The main functions of the external envelope are summarised together with a look at each type. The following issues are covered (with more detail in the Breathing Construction session on Day two):

- Airtightness – current legislation and the challenges of achieving an airtight construction
- Ventilation, moisture control & passive cooling
- Thermal mass – its effectiveness in offsetting the effects of climate change
- The benefits of passive solar design

Sustainable Water in the UK
Cath Hassell
This session is an introduction to the main issues around sustainable water use in the UK concentrating on the environmental pressures to reduce demand and how to do so most effectively. Water efficient appliances are covered in depth, and the concepts of rainwater and grey water as possible alternative sources to using potable water are introduced. The problem of storm water run off and the solution of Sustainable Urban Drainage Systems (SUDS) are also discussed (more on day two).

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Low Carbon Technologies Part 1
Cath Hassell
Covering carbon technologies not just renewables: heating system design, energy efficiency, condensing boilers, fuel choice and efficient controls are explained as being vital components of ensuring the carbon footprint of a building is reduced. The Feed-in-tariff and Renewable Heat Incentive are introduced and technologies such as solar thermal, photovoltaics, CHP, wind power, heat pumps and biomass boilers are covered in more detail. How architects can influence the behaviour of occupants is also explored.

Low Carbon Technologies Part 2
Robert Borruso
The pros and cons of today's popular technologies are explained, giving a good grounding in how and where different technologies work best i.e. the cost : carbon equation. There is also an explanation of 'just round the corner' technologies that the forward thinking designer will need to understand as the pace of client expectation increases. Finally the sessions mention of some of the pitfalls that can afflict projects and discusses strategies for avoiding greenwash.

Summary and close of day

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Day Two Workshop Summaries

Sustainable Building and Services Course

There is a choice of 4 workshops from different options throughout the day – topics include:

Life Cycle Analysis – Lucy Pedler
Life cycle analyses (LCAs) and whole life costings are discussed and each of the LCAs and tools available today are explained, including their limitations, advantages and disadvantages.
Issues such as the extraction of raw materials, building product manufacture, site practices, energy and transport associated with building together with the social and economic aspects of construction are considered. In order to assess the effectiveness of these tools, window frames are used to 'test' the LCA approach, highlighting where they are useful and where there are weaknesses.

Solar Thermal Systems – Cath Hassell
As the performance of the building envelope is improved the requirement for hot water heating becomes an ever larger proportion of the energy load. In any building with a high hot water demand solar thermal systems are the simplest and most cost effective way to heat water using a renewable technology; their importance in reducing CO_2 emissions is recognised in SAP, The Code for Sustainable Homes, BREEAM and the RHI.

The presentation covers standard solar thermal systems, drain back systems, flat plate collectors vs. evacuated tubes, design, installation and maintenance issues, and ensures that architects can specify the most efficient and safest system for any situation. As solar thermal for space heating is possible (just) in the UK, the workshop will also briefly cover the pro's and con's of this use of solar energy.

Breathing Construction – Lucy Pedler
This presentation explores the construction method of 'breathing construction' and the misunderstandings arising from the use of the term. Particular emphasis is placed on timber frame construction and there are a number of useful environmental issues to explore with this type of construction.

A generic breathing construction build-up is used as a model and the ecological advantages of each material of the model are discussed in detail, comparing each material to its conventional counterpart where relevant. Samples of some of the materials will be available during the session. Particular attention is made to the various ecological issues relating to timber frame and breathing construction, covering heat loss (including a comparison between natural and conventional insulation materials), moisture control, thermal mass, air tightness testing and ventilation (including passive stack ventilation).

Low Carbon Technologies In Depth – Rob Borruso
This session covers the technology, potential and limitations of super efficient fossil and renewable energy technologies. Technologies such as CHP, fuel cells, photovoltaics and wind turbines will be put into the context of the built environment.

The session is in two parts: a participant led introduction where any projects, ideas and experiences will be explored in detail, followed by an interactive element where the economics of various technologies can be tested in real time with the use of a computer model. The goal is very much to prepare the participant for the next stage of low carbon technology development.

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Day Two Workshop Summaries

Sustainable Building and Services Course

Delivering Sustainable Timber – Rob Borruso

The UK building industry consumes millions of tonnes of timber a year. Whilst in the past the sources of this timber were entirely unregulated, today greater awareness of the significant environmental damage thoughtless timber specification can cause has led to the introduction of many different certification schemes - some good, some not so good.

It will be demonstrated that experience has shown that just specifying 'sustainable timber' does not always lead to 'sustainable timber' being used. The session explains what schemes are available, where they can go wrong and explores ways of designing out the risk of unsustainable timber being used in the first place.

Rainwater Harvesting and Greywater Recycling – Cath Hassell

Harvesting rainwater will reduce potable water demand and can reduce localised flooding incidents. For this reason it is recognised as part of source control within a SUDS solution for any development and is a core part, combined with water efficiency, of a sustainable water strategy. In contrast, greywater recycling rarely has a place in a sustainable water strategy in most UK situations due to the high carbon load of treating this type of water. However, at higher levels of the Code for Sustainable Homes the use of both in new dwellings will increase markedly.

This workshop explains the rationale behind the above two statements, and looks at both rainwater harvesting and greywater recycling systems available in the UK market. Best practice in design, how to ensure the chosen system conforms to relevant legislation, and risk assessments of any site are all covered to ensure that you provide your client with the optimum solution for their development. Participants get the chance to work in small groups to determine, using actual case studies, whether rainwater would be the best solution for a particular situation, as well as learning simple sizing techniques and payback calculations for a rainwater harvesting system.

Sustainable Drainage Systems & Alternative Sewage Systems – Cath Hassell

Providing SUDS (sustainable drainage systems) to address the problems of storm water run off from sites is now required on an increasing number of new developments, especially since the implementation of PPS 25. SUDS encourage biodiversity as well as reducing the impact of storm water on the local environment through a variety of different design solutions. This session looks at best practice in SUDS using examples from the UK and abroad and covers source solutions such as green roofs and permeable paving, and conveyance and infiltration devices such as swales, detention basins and balancing ponds. Solutions to the problems of land grab, maintenance and costs are all provided.

To understand alternative sewage systems we need to understand what conventional sewage systems are currently being used in the UK. Reed beds and compost toilets are covered briefly and participants work in groups using an actual case study to replace a cess pit system in a county show ground with a suitable sustainable and cost effective solution.

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Sustainable Building and Services Masterclasses

A one-day course from The Green Register

25 April 2014, London

The Green Register's *Sustainable Building and Services Masterclasses* one-day course provides an ideal opportunity to learn about subjects that are relevant to your profession and skills at an advanced level.

Choose from 4 different topics on this one-day course:

- **Plumbing for Architects Part 1** - an overview of the main types of plumbing and heating systems in domestic and small commercial situations including core sustainable solutions - Cath Hassell, ech2o
- **Plumbing for Architects Part 2** - an overview of the main types of plumbing and heating systems in domestic and small commercial situations including core sustainable solutions (following on from Part 1) - Cath Hassell, ech2o
- **Introduction to the Building Regulations energy efficiency standards** - a critical look at the current and proposed energy efficiency standards required by the Building Regulations (for new and existing dwellings) - Mark Saich, Green Building Solutions
- **Eco-retrofit of historic dwellings - solutions and conflicts -** looking at some of the issues raised when carrying out eco-retrofits to older houses including cost versus carbon savings - Lucy Pedler, The Green Register
- **Introduction to the Passivhaus standard and methodology** – a concise and critical introduction to the Passivhaus standard and methodology which claims to deliver ultra low energy new and retrofitted existing buildings - Mark Saich, Green Building Solutions
- **Best practice detailing for eco-refurbishments -** taking a good hard look at some of the details that can compromise eco-refurbishments - Lucy Pedler, The Green Register
- **Implementing sustainable water solutions into a design**
  shows the step by step process to redesign a dwelling to really address sustainable water - Cath Hassell, ech2o

Please note topics and speakers may change depending on location of event - see our website for details.

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