Module 10/15
Low Impact Construction

Achieving sustainability requires us to live within the limits of the earth's capacity to provide the materials for our activities and to absorb the waste and pollution which our activities generate.

The construction, fit out, operation and ultimate demolition of buildings is a huge factor in human impact on the environment both directly - through material and energy consumption and the consequent pollution and waste - and indirectly - through the pressures on often inefficient infrastructure.

There is already a significant amount of information available to all professions on how to design buildings which are attentive to the needs of sustainable construction. However, most practice still falls radically short of applying even the most easily applicable principles in the majority of projects. Opportunities which could bring real advantage are being missed every day. The result is that buildings and the industries which supply building designers with products, materials and services are less efficient, less economical and more polluting than they might otherwise be.

Photo: Gaia Architects

Above: Straw Bale Office:- A 28 m² office in the garden of a Private Client who wanted a 'green' building, featuring a turf roof and roundpole construction. The design also incorporates non-loadbearing straw bale walls - lime plastered inside and out, sheep's wool insulation in floor and ceiling, and the use of reclaimed timber throughout.

Top left: Glencoe Visitor Centre:- The project aimed to have the lightest footprint possible in

This module looks specifically at what might be termed radical approaches to ecological design and the subsequent construction typologies. It aims to provide an appreciation of a number of different construction techniques. The module emphasises the importance of material choice, and the use of passive environmental control, which underpins much recent low impact design development.

The examples here raise a number of issues of significant technical and contextual interest which are both rooted in tradition and simultaneously at the forefront of research interest, and from which mainstream thinking can benefit considerably.

Conventional construction is incrementally improving toward ever better environmental performance. Low Impact Construction starts with fundamentally ecologically benign materials and systems and seeks to adapt and develop their use towards being truly sustainable, rather than simply environmentally improved, construction.

As sustainability exerts an increasing influence over design and construction thinking, approaches that appear radical at present will no doubt begin to permeate mainstream practice. Indeed there is evidence that they are already doing so.

Continuous Professional Development

This CPD module is the tenth of a series which will summarise the existing sources of best practice guidance on sustainable building design. These modules will not attempt to repeat what other documents contain, except to summarise the most important environmental issues.

Each module provides information on critical aspects of a particular topic and sources of further guidance by way of an annotated bibliography. Case studies highlight best practice solutions to improve understanding and encourage implementation. Each module is supplemented by seminars that provide an opportunity to discuss design projects in interdisciplinary groups with peers and

Objectives

By the end of this module the reader should:

- Be familiar with a range of low impact construction techniques;
- Appreciate the contribution that these techniques make within the overall context of sustainable construction and development;
- Appreciate the relative advantages and disadvantages of various methods;
- Understand where and when various methods are appropriate, and be able to advise clients accordingly;
- Recognise the need to develop a different approach to construction generally, which follows from a consideration of the practical aspects of the techniques;
- Understand, that there are important issues about materials, construction and passive moisture/thermal management, which are crucial to success or failure;
- Recognise that there are challenges surrounding unconventional procurement of materials;
- Be aware of available sources of information;
- Appreciate the context of low impact development within which low impact construction is an integral part;
- Recognise the need to work more closely with contractors and clients, who may be unfamiliar with terminology, techniques, sourcing, and the details of the methods;
- Recognise that there are important maintenance requirements associated with much low impact construction, and be able to advise clients accordingly;
- Recognise the potential "knock-on" advantages to the local economy, community and ecology.

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