

THE ROLE OF PROFESSIONAL INSTITUTIONS IN PROMOTING SUSTAINABLE CONSTRUCTION

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Abstract

The importance of sustainability in construction has become well established and many see it as a key factor in the future of the industry. The topic was introduced into construction principally by a few enthusiastic individuals, but has since been developed by industry, often for sound commercial reasons. Until recently the professional institutions have generally been less active. However this is changing and their role could become very significant.

The Institution of Structural Engineers based in the UK, but with a strong international role, pioneered the establishment of a task group to study sustainability in construction and has recently established a formal panel to deal with this issue. Its role is to support and advise members and to liaise with government bodies on achieving objectives. This paper describes some of the current and planned activities, and discusses the importance of an organisation which is not limited by commercial priorities, and is able to take a holistic view. Potential interactions with specific sectors, such as steel construction, and the mutual benefits, are discussed.

1 INTRODUCTION

There is a growing recognition of the importance of adopting the principles of sustainability in construction. This is happening for a number of reasons, not least that there is genuine concern that we must act urgently and responsibly if we are not to cause widespread and possibly irreversible damage to our environment. Many governments have recognised this and are signing up to agreements committing significant improvements within quite short timescales. Some commercial organisations are also recognising that there are business advantages in adopting sustainable principles in their operations. Indeed what was previously referred to as the environmental agenda has now been largely replaced by sustainability, which includes social and economic as well as environmental principles.

It would therefore appear that, with the backing of both governments and industry, sustainable construction would be 'normal'. Unfortunately this is not the case. Some governments have opted not to adopt the targets which have been agreed at a number of international summit meetings, and even those which have signed up have been wary of introducing legislation which could be unpopular and difficult or expensive to police. There is also a view that countries not committed to reducing environmental burdens are potentially gaining an unfair commercial advantage, thereby discouraging others from full implementation. Much of industry has also concentrated on how to profit from embracing sustainability, and there is often a reluctance to introduce systems which might be environmentally benign but economically imprudent - indeed the emphasis on sustainability rather than environment encourages this.

Despite this somewhat cynical view, there have been many welcome developments in recent years. In the UK industry has significantly reduced emissions, and government has implemented both incentives and support for developing sustainability, and penalties to discourage bad practice. One initiative, for example, has been to encourage the development of strategies by different business sectors, thereby establishing a partnership to help achieve some of the targets which it has agreed to. The construction sector is part of this process, but the nature of the industry makes it rather difficult to implement. For example, individual construction companies can deliver by adopting strict policies of sustainability, including sourcing materials from appropriate suppliers. However there is widespread ignorance, and commercial interests are often paramount. Also action in isolation is of limited value and there is a need for a coordinated approach.

Specific materials suppliers, such as the steel industry, have recognised the threat and opportunity represented by sustainability issues, and have been most active in this area. This has often been in the form of demonstrating their own credentials and offering support to designers and builders. There has also been some investment in research and development, but there have also been some very misleading advertising campaigns which have simply helped perpetuate myths. As would be expected, the activity of materials suppliers is narrowly focused and sometimes biased, and this can cause added confusion.

What is needed is a body which is independent, respected, and transcends all vested interests, and it is here that Professional Institutions have a significant role to play. They have considerable authority and enormous expertise through their members. This means that any outputs will be well regarded, and also widely disseminated through the membership.

2 POSSIBLE ROLES FOR PROFESSIONAL INSTITUTIONS

Because of their independence, the Professional Institutions have a special role to play in relation to any issues affecting their sector. This includes collating and disseminating information, and encouraging adoption. In the field of sustainable construction there is a paucity of readily available factual information. Without generating new data, much could be done simply by assessing and collating existing information, and disseminating this to the members. Other actions could also be adopted to encourage and support implementation across the industry.

Through their members, the Professional Institutions have access to a unique source of data. This includes the results of conventional research and analysis, but in their role as Learned Societies, they also have a tradition of sharing experience, for example through case studies and best practice. Links to other cognate groups are also extremely beneficial in this context, and because of their independence there are less likely to be problems of commercial sensitivity.

Institutions are also well placed to disseminate information - indeed this is a central role of a Learned Society. This typically takes a variety of forms including technical reports, prepared by either the institution or other organisation, and conferences. In addition most institutions will publish their own journal which typically include technical papers, news, and articles on topical issues. This provides a further mechanism for disseminating material and information. In parallel with this use of the internet is becoming very common - most institutions will have a web site and increasingly members are using this as a means of searching for current information.

More formally, educational activities organised as part of the Learned Society function provide opportunities to update members and non-members on specific issues. With increased interest in 'life long learning' or 'continuing professional development', particularly for newly emerging issues such as sustainability, there is considerable scope for offering short courses to practitioners, as well as support material for undergraduate courses at universities and colleges.

Table 1 Some recent UK government publications setting out policies on sustainable construction

Date	Publication
1990	This common inheritance: Britains environmental strategy
1994	Sustainable development: the UK strategy
1995	Making waste work: A strategy for sustainable waste management in England & Wales
1999	A better quality of life - a strategy for sustainable development in the United Kingdom
2000	Climate change - a draft UK programme
2000	Building a better quality of life - a strategy for more sustainable construction
2001	Foresight - Energy & Natural Environment Panel, Built Environment & Transport Panel

Another central service which institutions can provide to members is to support their implementation of new developments. With respect to sustainable construction, this might relate to dealing with new legislation, or taking advantage of opportunities and incentives. In the UK the government has set ambitious targets for some environmental impacts, and there is a need to inform practitioners about

this and how they can best respond. In fact there have been numerous initiatives and it is not easy to keep abreast of these. Table 1 indicates a selection of some of the most important ones to have been published in recent years.

In the future it is likely that organisations will need to publish their own policy for sustainability and an associated strategy. The development of such approaches may be beyond the realistic capability of smaller companies, and the institutions could provide effective support, perhaps through the development of model documents supported by an advisory service.

It is also likely that progress will need to be measured against Key Performance Indicators (KPIs). Not only could the institutions play a lead role in determining appropriate measures, but they could also support companies in their implementation. Associated with this there could be a welcome for a variety of tools which could assist designers, specifiers, and contractors in the practical application of associated legislation. If this included reporting procedures, then a system of endorsement would be valuable.

Learned Societies have a unique position in that they are less constrained by commercial pressures, but can act as guardians of good practice. In this respect they are in an excellent position to encourage the take-up of good sustainable construction principles. This simply reflects what is already done in other areas and could include specific awards for good practice, highlighting the potential business advantages to be gained from adopting sustainable principles. In a broader sense, the institutions are also in a position to set an example, for example by establishing good practice in relation to running its own affairs, many of which are reflected in how companies, represented by its members, also perform .

3 WHAT IS THE INSTITUTION OF STRUCTURAL ENGINEERS DOING IN THE UK

When concerns about the effect of construction on the environment started to become widely recognised some years ago, the Institution established a Task Group to investigate the relevant issues. The team selected represented some of the most experienced and knowledgeable structural engineers in the UK, and they were able to develop a report which effectively summarised the current position, outlined the possible future impacts if we continued without changing attitudes, and indicating how change might be introduced[1]. Some very clear and specific advice was provided, recognising that structural engineers do not operate in isolation but are generally part of a much wider team, including clients, builders, material suppliers, and government (Figure 1). The report was published in 1999, and has been well received by both members and non-members.

In 2000 the Institution established a Sustainable Construction Panel, with a remit to maintain an awareness of sustainability issues, disseminate this to the membership, and provide a forum for debate. Where appropriate this was to be done in cooperation with other organisations. The panel was drawn from both members and non-members, including some from cognate disciplines such as architecture and building services. All had a strong interest in sustainability and a variety of experience.

The principal methods for communication have been the Institution's web site and journal – The Structural Engineer. This has enabled an effective two-way flow of information – both informing members of the Panels activities and recommendations, and inviting contributions from readers. The value of the Institution's earlier report was also recognised, and it was decided that this could be exploited to a much greater extent. Much of the content remained valid, and it was used as the basis for developing a Powerpoint presentation. The Panel has offered this to individual regional Branches which typically hold monthly technical meetings, and a number have taken advantage of this. This has been a very effective way of communicating the basic issues of sustainable construction to practising engineers, and initiating a debate.

A one-day colloquium has also been organised with a focus on the ways in which structural engineers can contribute to sustainable construction, and how changing attitudes might influence current practice. There have been a number of similar conferences, but these have often had a general architectural emphasis, and there has been little which specifically addresses structural engineering.

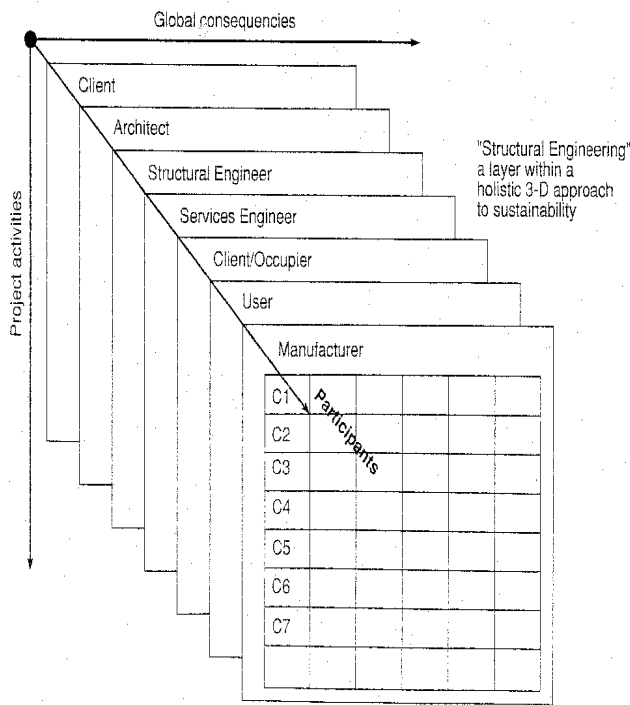


Figure 1 An illustration from *Building for a sustainable future: Construction without depletion* [1] showing a suggested matrix approach which might be adopted by structural engineers working as part of a team.

The day will concentrate largely on case studies (Figure 2), with the design engineers responsible for four significant projects explaining how they approached the question of sustainability, what the implications of this were, for example in terms of cost, the problems encountered, and how the final outcome compared with the original vision and design brief. This is part of an ongoing process to establish 'facts' in what is a new and developing discipline. Collating information and experience from members in relation to real projects is regarded as especially valuable, and advice on sources of information, help, tools available and approaches used, as well as the obstacles encountered will be of enormous benefit. Little information is available at present, but the colloquium is a start, and the exchange of information is expected to grow as more sustainable projects develop, and this will be disseminated through the Institution's web site, Journal and special events.

Activities which have been initiated but which have not yet developed to the extent that any outcomes can be reported include establishing contacts with university departments, training organisations, and client groups to provide support and hear comments from a different viewpoint. The Panel is also intending to review how members serve their clients and the public with regard to sustainable development, providing independent professional advice and opinion on the difficult choices structural engineers have to make in complex circumstances. This is a long term programme which has been started through initial debate within the panel based on discussions led by individuals.

Another planned activity is to collate best practice information from specialists such as materials suppliers. Many such organisations have conducted their own work, but the outcomes have often been in the form of promotional literature, for example demonstrating the credentials of one material compared with another. Long term it would be far preferable to develop an integrated approach. The Institution is ideally placed to coordinate this, but in the shorter term it is intended to invite these specialist supplier to contribute their ideas on how their own products might best be used in a sustainable manner (rather than why use, for instance, steel instead of concrete)

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Figure 2 Wessex Water Headquarters – one of the case studies featured at the colloquium

been in the form of promotional literature, for example demonstrating the credentials of one material compared with another. Long term it would be far preferable to develop an integrated approach. The Institution is ideally placed to coordinate this, but in the shorter term it is intended to invite these specialist supplier to contribute their ideas on how their own products might best be used in a sustainable manner (rather than why use, for instance, steel instead of concrete)

Longer term plans include providing support and encouragement to members and companies on the adoption and implementation of policies and strategies for sustainable development. This might include a process of monitoring and review, enabling organisations to demonstrate their pedigree.

4 CONCLUSIONS

The professional institutions have a unique role to play in relation to sustainable construction. They are free from the narrow constraints of commercial organisations, have a wealth of expertise available through their members, are regarded with authority, and have well established mechanisms for dissemination.

Because of their independence, institutions have a special role to play in relation to any issues affecting their sector. This includes collating and disseminating information, and encouraging adoption. Future actions are likely to include supporting implementation, encouraging take-up, and possibly monitoring and reviewing individual achievements.

In common with a number of other similar bodies, the Institution of Structural Engineers is contributing to this process and is committed to playing an active role in future developments.

5 REFERENCES

- [1] Building for a sustainable future: Construction without depletion, Institution of Structural Engineers, London, 1999.

