

Committee of the Regions

WORKING DOCUMENT

Commission for the Environment, Climate Change and Energy

Resource efficiency opportunities in the building sector

CIBSE response to the Committee Document

Introduction

This paper is submitted by the Chartered Institution of Building Services Engineers (CIBSE) in response to the Committee Paper ENVE-V-049, which comments on the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Resource efficiency opportunities in the building sector, COM(2014) 445 final.

The Chartered Institution of Building Services Engineers is the professional engineering body that exists to:

'support the Science, Art and Practice of building services engineering, by providing our members and the public with first class information and education services'

For further information about the Institution, please see Appendix 1 to this response.

CIBSE has the following comments on the committee paper.

Resource efficiency is an important and significant topic, in particular for the building services sector. Building services engineers address the design, manufacture, specification, installation, operation and maintenance of engineering systems in buildings, which are also the major energy using systems in a building.

Unlike the fabric of the building, the structural frame and the external envelope, as well as internal furnishings, which are made of a limited range of materials, the engineering systems are manufactured products which use considerable quantities of materials, some of which, such as rare earths, are scarce and supplies are limited to a few territories.

Resource efficiency is therefore a very different topic in respect of building engineering systems rather than structural frame and envelope systems. CIBSE has recently published guidance for engineers on resource efficiency in building engineering systems, which provides advice on addressing the issue of resource efficiency in the sector.

CIBSE suggests that when considering manufactured systems incorporated in buildings, there is a very different analysis required than when considering the use and re-use of bulk materials such as concrete, steel, timber, masonry, glass and gypsum products. Manufactured products are subject to various energy efficiency standards and labelling requirements already, and in some cases to regulations relating to waste disposal.

Finally, it is important to note that building engineering systems rarely have the same life cycle as the structure and envelope, and will be replaced more frequently.

In response to paragraph 11 of the committee paper, it is important to distinguish between renovation of the services and internal furnishings of a building and the renovation of the structural frame and envelope. Renovation of services to replace older, inefficient systems with new efficient systems is widely encouraged to reduce energy use and carbon emissions. Paragraph 11 needs to differentiate between these two types of renovation.

In response to paragraph 12, it is important to recognise that whilst renewable energy can contribute to more sustainable construction, there is a clear hierarchy of energy use in buildings. Efficient building fabric, with appropriate levels of insulation, and efficient building engineering systems which are correctly installed and operated, can contribute very significantly to reducing energy demand and carbon emissions. In some cases this “fabric first” approach is far more cost and energy efficient than the use of renewable energy.

Integration of wind power systems into buildings creates significant structural demands, which may well render the approach uneconomic and indeed compromise the intended resource efficiency. As the paper recommends, accurate analysis is essential.

The recommendation in paragraph 15 of the committee document is very important. There is a clear need for clarity of terminology in relation to resource efficiency, and indeed to energy efficient construction, as noted in the paper. There may be a role for the European Standardisation Bodies in this topic.

Paragraph 18 notes the consideration of bulk materials. It is also important to note that engineering systems in buildings contain a very wide range of materials, and considerable further investigation is needed into greater resource efficiency for these systems.

Paragraph 20 notes the need for training. As noted above, CIBSE has recently produced new guidance¹ on resource efficiency of engineering systems

In conclusion, CIBSE welcomes the attention to resource efficiency, the Commission communication and the committee paper. This is an important topic, and in particular for the building engineering services sector we consider that considerable further work is needed before any new requirements are introduced for the sector.

¹ TM56 Resource Efficiency of Building Services, CIBSE, London, March 2014.

Resource security is becoming more of an issue, with risks affecting the availability and price of materials essential to industry. Construction clients are becoming increasingly interested in resource efficiency, particularly in terms of the embodied energy of buildings. Most research into resource efficiency and embodied energy has focussed on building structure and fabric, specifically excluding building services. Building services represent a significant proportion of the materials used in a building. Plant and equipment typically use a high proportion of steel, aluminium, plastics and copper in their construction and use rare earth elements for key components such as permanent magnets in motors and phosphors for lamps.

About the Chartered Institution of Building Services Engineers

The Chartered Institution of Building Services Engineers (CIBSE) is the primary professional body for the engineers who design, install and operate the energy using systems, both mechanical and electrical, which are used in buildings. Our members therefore have a pervasive involvement in the use of electricity (and other energy carriers) in buildings in the UK.

CIBSE is one of the leading global professional organisations for building performance related knowledge and a pioneer in responding to the threat of climate change. It publishes numerous Professional Guides and other titles setting out best practice in support of the industry.

The Institution is the primary source of professional guidance for the building services sector on the design and installation of energy efficient building services systems to deliver healthy and effective building performance. CIBSE publishes Guidance and Codes which provide best practice advice and are internationally recognised as authoritative.

The CIBSE Knowledge Portal, which makes our Guidance available online to all CIBSE members globally, is the leading systematic engineering resource for the building services sector. Over the last year it has been accessed over 100,000 times, and is used regularly by our members to access the latest guidance material for the profession. Currently we have users in over 160 countries worldwide, demonstrating the world leading position of UK engineering expertise in this field.

CIBSE began to develop codes specifically intended to reduce energy consumption in the early 1980s, in response to the energy crises of that time. CIBSE is now at the forefront of efforts to reduce carbon emissions from our building stock.

In addition to the production of technical standards and guidance CIBSE provides professional development training for system designers and installers, covering design, installation, commissioning and system maintenance. CIBSE is also actively engaged in the gathering of performance data to help inform good practice and compliance with existing requirements.