

Sustainability in construction and environmental impact of the construction indus...



Sustainability in Construction

There are many definitions of Sustainability, it has been evaluated as “ Sustainability is adapting the ways we all live and work towards meeting needs, while minimising the impacts of consumption and providing for people of today and not endangering the generations of tomorrow”. [1]

At the heart of sustainable development is the simple idea of ensuring a better quality of life for everyone, now and for the future generations. It means achieving social, economic and environmental objectives at the same time. “ It will give us a more inclusive society in which the benefits of increased economic prosperity are widely shared, with less pollution and more efficient use of natural resources”. [2]

Sustainable development was defined by the Brundtland Commission (1987) as “ development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Sustainable construction aims to provide ways for buildings to use fewer raw materials and less energy, cause less pollution and less waste but still provide the benefits that construction projects have brought throughout history. Most definitions stress that sustainability requires making decisions that recognise the connections between actions and effects in the environment, economy and society. Sustainability is often seen as an ethically and moral debate.

“ Social, environmental and economic needs must be met in a balance with each other for sustainable outcomes in the long term.” [3]

Sustainable construction is meeting environmental and social responsibilities, and at the same time improving profitability. The key characteristics of sustainable construction are similar to those set for sustainable development, the end result is to reduce a firm's detrimental effects on the environment.

The industry is defined by a number of sectors, all who plan, design, build, alter or maintain the built environment. Also it's subsidiaries, those who manufacture materials, suppliers, and end of life occupiers or owners. The entire life cycle of any structure, from initial concept to demolition must be encompassed in the definition of sustainable construction. Buildings and structures change the face of towns and countryside, and their construction, use, repair, maintenance, and demolition consume vast amounts of energy and resources compared to many other industrial sectors. [4]

The environmental Impact of the Construction Industry

The government has stated that the construction, occupation and maintenance of buildings account for around 50% of the UK's total CO2 emissions. [5] The construction process and building use not only consume the most energy of all sectors in the UK and create the most CO2 emissions, they also create the most waste, use most non-energy related resources, and are responsible for the most pollution. In light of government plans to reduce the United Kingdoms CO2 emissions by 80% based on 1990 levels [6], the construction industry is at the forefront for reducing emissions in industrialised nations and the United Kingdom is no exception.

Code for Sustainable Homes

The code for Sustainable homes is a framework which has been put in place by the government as a step change towards producing more sustainable homes. The code is a result of a working relationship between the Building Research Establishment (BRE) and the Construction Industry Research and Information Association (CIRIA). The main aim of the code is to provide the construction industry a drive towards “ continuous improvement, greater innovation and exemplary achievement in sustainable home building.” [7]

The code enhances the use of Energy Performance Certificates which is a result of the Energy Performance of Buildings Directive (EPBD). The Energy Performance Certificates are used in new homes whenever they are sold or leased and are an indicator of carbon performance of the home.

There are 9 main design categories covered in the code as follows:

- * Energy/CO2

- * Pollution

- * Water

- * Health and well-being

- * Materials

- * Management

- * Surface water run-off

- * Ecology

* Waste