

Sustainable development toward an eco-build homes



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Introduction

Sustainability in construction is a common issue today, ranging from sustainable design to sustainable technologies. These issues have made the United Kingdom's Government push forward for alternative advances in various technologies and renewable energies. The government are also looking for any other strategies to reduce carbon dioxide emissions because the scientific evidence shows that the impacts of greenhouse gas emissions are growing rapidly in UK. Due to 47% of the national energy consumption that is used by the UK homes and domestic buildings regardless of when lighting, appliances and buildings are energy efficient as well as having zero carbon technologies are installed.

Due to the higher rate of energy consumption that homes in United Kingdom's generate, the government came out with an idea that, all newly built homes in England and Wales should be built to zero carbon by 2016. By progressively tightening the energy efficiency building regulations by 25% in 2010; and by 44% by 2013 leading up to the zero carbon target in 2016.

Aim and Objective

The aim and objective of this project is to design a three bedroomfamilyhouse that will achieve code level 6 zero carbon footprint. This can be done by using a sustainable and eco friendly materials. Research will also carried out on current zero carbon homes project and also looking into the past project that has already achieved code level 1, 2, 3, 4, 5.

Climate Change

The word of climate change is one of the biggest threats to the global environment especially to the developed country like UK. It needs an urgent and radical response if we want to secure and enhance our prosperity and quality of life. The uses of fossil fuel (oil, coal and gas) for energy and transport has already damaged our climate and as a result of this, the climate change is already having impact on our lives and is expected to destroy the livelihoods of many people in the developing world as well as ecosystems and species. The research carried out shows that greenhouse gases are the main contributors to the climate change and the government are committed to reduce the production of greenhouse gases particularly on carbon dioxide. In November 2008, the climate change act became law this is because the government want to reduce carbon dioxide emission CO₂ by a minimum of 26% by the year 2020 with a long time goal of 80% reduction by 2050.

The scientific evidence shows that 47% of carbon dioxide emission CO₂ in the UK come from the energy used in our houses and other domestic buildings e. g. hospital, school and offices. In order to eliminate carbon emissions from the built environment by 2050, we need to start making our buildings as energy efficient as possible and using on site renewable energy, community scale renewable and decarbonisation of the grid. The UK government has done a lot in order to achieve the commitment of the climate change Act by introducing mandatory energy performance certificates for sale and purchase of new and existing homes, The government banned incandescent light bulbs in favour of energy saving light bulbs, introducing the climate change

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level where businesses must pay additional tax on their use that is non renewable energy and by passing energy act 2008 which introduce measure such as the feed in tariff, smart metering, renewable heat incentive and carbon capture & storage. The government even went as far as introducing the renewable obligation whereby all electricity suppliers must provide 10% of the electricity they sell from renewable sources.

The issue of the climate change is behind why we arrived on the sustainable development.

Sustainable Development

Sustainable development has become generally accepted as planning goals in UK, which was defined by Department of the Environment Transport and the Regions London (2000) as;

“ The simple initiative of ensuring a better quality of life for everyone, now and for generations to come”

The intention of the definitions is to achieve social, economic and environmental objectives and at the same time given us more inclusive society by which the benefit of increased economic prosperity are widely shared, with less pollution and more efficient use of natural resources.

The key objective of achieving the sustainable development is as follow;

The sensible use of natural resources

The effective protection of the environment

Maintaining high levels of economic growth and employment

Social progress that recognises the needs of everyone

The sustainable development is a serious matter because need for growth is becoming huge as ever especially in a developing world. At this point of time, the environments are struggling to cope with the current levels of consumptions, e. g. Energy Consumption which is having huge impact on the climate change. The government has to come out with a new way of meeting people's need, prospect and aspiration to ensure that our economy, society and environment grow and develop in harmony. We should also know that, the design and construction of a building play major role in contributing to the sustainable development. The issues of sustainable development lead us to the sustainable design which concentrates on how individual or groups of building complies with the objective of sustainable development. This is by ensuring that the sustainable designs are;

The construction of buildings should minimises the amount of resources they use, including energy, waste and pollution

The materials used for construction should be environmentally and eco friendly

The existing built fabric should be re-used as far as possible

Buildings are energy efficient

The issue of sustainable design usually focus on long term benefit rather than short term saving reason is that, sustainable building will cost less to build and has smaller impact on the environment in terms of natural resources that are used during the construction.

Literature Review

Scope of the Chapter

This chapter explains what zero carbon homes is also the sustainable principle and sustainable codes. All relevant building regulations especially Part L 2006 will be looking at in other to accomplish the aim of the project. Analysing case study on the previous project that already achieved code level 1, 2, 3, 4, 5, and 6

Conclusion

Research will be on case studies, materials and design of past projects will be discussed and at a later date incorporated it into proposed three bedrooms family house.

The discussion on how the building will achieve code level 6 will on be considered in the chapter and the consumption of energy that the house use will also be detailed.