

# [Construction and the environment](https://assignbuster.com/construction-and-the-environment/)

Construction and the Environment 1)Select and describe a fit ??“ for-purpose sustainable construction technique for each of the following issues; energy, materials and waste Energy Greener buildings often include measures to reduce energy use.

To increase the efficiency of the building they may use high-efficiency windows and insulation in walls, ceilings, and floors. Solar water heating further reduces energy loads. Onsite generation of renewable energy through solar power, wind power, hydro power, or biomass can significantly reduce the environmental impact of the building. Power generation is generally the most expensive feature to add to a building. Solar powerThe term solar power is used to describe a number of methods of harnessing energy from the sun. As fossil fuel sources deplete and environmental concerns about greenhouse gasses increase, renewable energies such as solar power are increasing in popularity across the world including the UK. There are two types of solar power-solar electric power which use photovoltaic cells to convert solar radiation into electricity, and solar thermal energy where the sun??™s energy is used to heat water. Photovoltaic cells consist of one or two layers of a semi conducting material which is usually silicon.

When light shines on the cell it creates an electric field across the layers, causing electricity to flow. The greater the intensity of the light the greater the flow of electricity. Solar thermal energy is a relatively simple process where water is pumped into solar panels and, as it passes through them, is heated and then stored in a tank ready for use. The new systems that are being made today can keep the water hot for good periods of time. In both cases solar panels are usually fitted to the roof and work during daylight hours, however with a new house being built from the ground-up it may be possible to integrate them more seamlessly into the house. It is a misconception that solar panels only work with direct sunlight and solar power collectors can heat water on a very cloudy day. While solar power will not usually completely support a central heating system or provide enough electricity for all a home??™s requirements, a substantial supply of power or domestic hot water can be provided.

Materials- Sustainable Building materials include rapidly renewable plant materials like bamboo and straw, timber from forests certified to be sustainably managed, ecology blocks, recycled stone, recycled metal, and other products that are non-toxic, reusable, renewable, and recyclable (e. g. Linoleum, sheep wool, panels made from paper flakes, compressed earth block, rammed earth, clay, vermiculite. Building materials should be extracted and manufactured locally to the building site to minimize the energy embedded in their transportation. Timber frame constructionAs its name implies, timber frame construction is a method of building which relies on a timber frame as a basic means of structural support. Framed buildings are often referred to as ??? lightweight construction??™, but don??™t be misled, it??™s a precision engineered structure that is remarkably strong and durable. During construction, open panel timber frame is covered internally by plasterboard, filled with high performance insulation. Moisture/vapour barriers are incorporated and the outer leaf of the wall completes the structure.

The outer leaf is typically stone, brick, render or timber to suit the local vernacular and planning requirements. There are many other forms of timber frame, including advanced and closed panel systems, volumetric and hybrid systems. Structural Insulated Panel (SIP) technology is another exciting development in timber based construction methods. Today??™s modern timber frame construction;??? Is engineered to the highest level of accuracy and quality; ??? Significantly simplifies on-site construction; ??? Promotes greater efficiency and supply chain integration; ??? Brings predictability and greater control to the construction process; ??? Meets and often exceeds all current building regulations; ??? Performs well in terms of fire and flood resistance; ??? Improves construction health and safety; WasteThe construction industry is a major source of waste in England, using the highest tonnage of solid material resources in any sector, over 400 million tonnes. The construction, demolition & excavation (CD&E) sector generates more waste in England than any other sector, and is the largest generator of hazardous waste, around 1. 7 million tonnes a year.

Objectives of the waste strategy for the construction sector include:??? provide the drivers for the sector to improve its economic efficiency by creating less waste from design to demolition??? treat waste as a resource, re-using and recycling more and asking contractors for greater use of recovered material??? improve the economics of the re-use and recycling sector by increasing demand and securing investment in the treatment of wasteReducing, Re-using and Recycling ??? Conserves natural resources by reducing the demand for raw materials, ??? Conserves energy and water since manufacturing with recycled materials requires less processing than extracting raw materials, ??? Reduces air and water pollution since manufacturing from recycled materials is generally a cleaner process and uses less energy, ??? Minimizes what is discarded, which maximizes limited landfill capacities and ??? Protects our health and the environment when harmful substances, which can be recycled, are removed from the waste stream and processed back into useable products. Recycling facts??? Recycling cuts energy consumption and pollution. Paper recycling can reduce air pollutants by 75% percent and water pollution by 67 percent; using scrap steel and iron rather than virgin products results in an 86 percent reduction in air pollution and a 76 percent reduction in water pollution; recycling aluminum saves 95 percent of the energy used to produce it from virgin products. ??? A ton of recycled paper saves 17 trees and three cubic yards of landfill space. ??? Buying recycled products is an essential part of making recycling work (closing the loop).

The residential building industry can play a major role in helping to reduce waste and promote recycling by specifying and asking for recycled products