

Minimising the emission of co2



Minimising the emission of CO2 To control and assess CO2 emissions, information on energy used for heating and hot water is taken and added to a calculation to estimate the energy consumption from lights and appliances. This provides a more comprehensive figure for overall CO2 emissions than the Carbon Index in the Building Regulations.

To control the consumption, of energy low energy lights can be used in locations like lounge, kitchen, hall way. Full low energy lights can be used in habitable rooms.

To qualify as low energy lighting, the efficacy of the lamp must be 40 Lumens per Watt or better. Low energy appliances are considered in Eco Labelled goods. Blocks of flats/apartments may have central boilers supplying the block(s).

Source: BRE team, 2005 Eco homes - 2005, Building research establishment Ltd, 2005, electronic, 10-07-06, ecohomes. org

Cooling Thermal Storage

A cooling thermal storage system is like a conventional chiller system, with the addition of a large container that stores cooling in ice, chilled water, or some other material. At different times, the cooling load of the facility may be served by the chiller directly, by the cooling storage unit, or by both. All forms of thermal storage involve losses, and they require additional energy for the operation of the system. The key issue is reducing the electric consumption. It allows the utility to generate more of its electricity with its most efficient generators. It may also allow the utility to generate electricity with fuels that are less scarce or less critical. Cooling storage will undoubtedly become more successful, both technically and economically, as experience accumulates.

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Source: D. R. Wulfinghoff 1999, Install cooling thermal storage, Energy efficiency Manual, 1999, Energy books. com, 10-07-06, ,

Energy Saving Potential

Conductive Heat Loss

The additional heat loss depends on the thermal resistance of the surface, the discharge temperature of the fan-coil unit, and the amount of surface area that is affected. If the fan coils were to be fitted under a window, the window designs can make the difference and save energy from escaping out. Wall is reasonably thick and the windows are installed flush with the outside surface of the wall, this leaves a space for installing curtains or other window treatments next to the window, without extending out over fan coil units.

3 to 50 percent of heating energy is saved depending on the amount of wall or window area affected the thermal resistance of the surface, the discharge temperature, and the extent of heat trapping.

D. R. Wulfing huff, 2000, Keep conditioned air from discharging on windows and exterior walls, Energy efficiency manual, electronic, 10-07-06, energybooks. com

Simple Ways to Save Energy

To eliminate draught and wasted heat use an easy-to-fix brush or PVC seal on your exterior doors. Make sure your windows are draught proofed.

Turning thermostat down by 1C will cut your bill by 10%. Always put the plug in your basin or sink. Close your curtains at dusk to stop heat escaping.

Always turn lights off when you leave a room and adjust your curtains or blinds to let in as much light as possible during the day. Don't leave the fridge door open for longer than necessary. Avoid putting hot or warm food straight into the fridge by allowing it to cool down first. Always wash a full

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load. Always use the low temperature programme bearing in mind that modern washing powders will be just as effective at lower temperatures. Install a water saving device in your cistern.

Source: shaw team, 2005, Housing Energy, sheffield city council, 2005, Electronic10-07-06, <http://www.sheffield.gov.uk/in-your-area/housing-services/environmental-sustainability/energy-efficiency>

Sustainable design, passive solar, high thermal mass

The design of the home getting enough solar energy can save enough energy and make the people in the house healthy. Prefer to use poured-in-place concrete walls or better yet, concrete blocks for easy "do-it-yourself" dry stack block walls (no mortar) with surface bonding cement. In Clearwater, Florida, nearly every home is block to avoid termites, rot and storms. Radiant cooling (and heating) is more comfortable because you store cooling (or heating) energy in the walls and floor, too, not just the stale air inside the home. A common misconception is that autoclaved aerated concrete, straw bale and log homes have large thermal masses. This is simply not true. They have very low thermal masses as compared to concrete.

Source: The Natural Home Building Source, 2006, Sustainable design, The Natural Home, Electronic, 10-07-06, <http://www.thenaturalhome.com/passivesolar.html>

Solar Hot Water System

To make your home more eco friendly use solar hot water system. The use of cylindrical evacuated glass tubes to absorb the heat from the Sun. This results in there always being a surface area that is perpendicular to the Sun. Flat plate solar systems only operate at their optimum efficiency when the <https://assignbuster.com/minimising-the-emission-of-co2/>

sun is directly overhead (i. e. midday). In contrast, cylindrical evacuated glass tubes can work optimally throughout the day. The use of this system is: conservation of up to 40% more efficient than comparably sized flat plate solar systems, easier to install, maintenance-free, frost protected down to minus 40 degrees Celsius (do not require any anti-freeze), low profile and modern, stylish design, lightweight (no need to strengthen your roof), tough and durable

Source: Ecological Homes team, 2006, endless solar, Ecological home, Electronic, 10-07-06, <http://www.ecologicalhomes.com>.

http://www.ecologicalhomes.com/Endless_Solar_inquiry

Earth Sheltering

Earth Sheltering basically means covering a building with a layer of earth which acts as a kind of blanket. By doing this, buildings can be covered in plants, helping to conserve the countryside around, and the earth covering acts as a massive insulator, allowing huge savings in energy. Earth sheltering may cost a little more initially, but there are big savings in the long term. The easiest method is to build into a hillside, so that three sides and the roof of a building are buried while the fourth side is mostly glass to gain maximum sunlight. In contrast, earth sheltering means using combinations of light, space, vegetation and water to their full advantage, both inside and out.

Source: B. E. S. A, 2006, AN INTRODUCTION TO Earth Sheltering, B. E. S. A, electronic, 10-07-06, <http://www.besa-uk.org/intro.html>

Eco-Restorer System

Eco-Restorer system can be adapted to a group of houses or homes, better <https://assignbuster.com/minimising-the-emission-of-co2/>

in the case of apartments. To reduce the organic material and inorganic solids in waste water 3 anaerobic bio reactors were buried outside the greenhouse. Due to absence of oxygen in waste water the growth of anaerobic and facultative bacterial population is promoted. Waste matter from the anaerobic tanks flows into a closed aerobic tank in the greenhouse. Air is introduced through fine bubble diffusers to convert the waste water from an anaerobic to an aerobic state. The Plants introduced provide favourable environments for enhanced microbial activity. Secondary plant functions include nutrient removal, metal sequestering, pathogen destruction and some control of gas exchanges. The main objective is to have a healthy and diverse sequence of ecosystems present.

Source: Dr. John Todd, 2006, Eco restorer, Living technologies Ltd, Electronic, 10-07-06, <http://www.ltluk.com/technical.html>

Green House

The greenhouse is built from a galvanized steel frame, clad in a high performance glazing system. The walls are 10 mm polycarbonate. The roof is composed of high light transmission panels, with good thermal efficiency normally used for solar panels. Co2 emissions are by-products of the operation of a house through energy used in heating and electricity. The design and siting of the houses reduces the energy requirement. Heat from the sun is exploited through the orientation and form of the building and a highly insulated building envelope keeps the building warm. Install solar panels to convert solar radiation into hot water.

Source: SWEH, 2006, Environmental and social objectives, South west eco homes, Electronic, 10-07-06, <http://www.swecohomes.co.uk/envobj.html>.

High Thermal Mass, Earth Home

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If one is worried about earth quakes, tornadoes, hurricanes, fire and termites use dry stack block. Dry stack block walls are stronger and more durable than any stick framed or straw bale home. In addition to being fireproof, surface bonded walls are waterproof and they resist air and sound penetration better than other types of construction materials. The walls are absolutely termite and rot proof. The application of surface bonding cement provides structural strength along with textured finish with colour capability. The economic strengths of dry laid block begin with the inherent properties of concrete block and the block can be dry stacked faster.

Source: B. E. S. A, 2006, AN INTRODUCTION TO Earth Sheltering, B. E. S. A, electronic, 10-07-06, <http://www.besa-uk.org/intro.html>.

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