

Insulation and the Climate Issue





Improved Insulation Contributes to a Better Global Climate

The Climate Change is the most important environmental issue of our time. The emissions of greenhouse gases, in particular carbon dioxide (CO₂), have contributed to a rise in global average temperature with a great many environmental problems as a result. With the Kyoto Protocol, the European Union and its member states have committed themselves to reducing the emissions. In Europe 40 % of the energy use is utilized for heating of buildings. Improved insulation in housing can help reduce the energy use and this is why mineral wool insulation has an important role in the climate issue.

EU Coordinates the Environmental Issues

The long-term climate goal for EU is a maximum increase of the earth's average temperature with 2°C (37°F). In order to achieve this, the levels of greenhouse gases in the atmosphere should not exceed 450 parts per million (ppm). However this requires that the emissions in the year 2030 are limited to 31 billion tons of carbon dioxide equivalents, a decrease by 26.7 billion tons compared to what the situation would be if no actions were taken (58 billion tons).

McKinsey Report Proposals

McKinsey, the global management consultant, has investigated the global economy in order to find tangible possibilities to lower the emissions of carbon dioxide. The report highlights six sectors and six areas with potential. Two thirds of the measures can be made with existing technology and one fourth

can be made with minor or even negative costs (< € 40/ton). Interestingly enough the report emphasizes buildings as a field with negative costs. In this sector there is a potential cost-saving of 3.7 billion tons out of a total of 26.7 billion.

The Swedish Commitment

Limited climate influence is one of 16 environmental quality goals which the Swedish Government has adopted. Sweden's national goals within this area signify that as an average value for the period 2008-2012, the Swedish emissions of greenhouse gases should be at least 4 % lower than the emissions in 1990.

A positive housing environment is another of these goals. The housing environment should offer a healthy living environment and buildings should be designed in an environmentally friendly way. The part goal "energy use in buildings" means that the energy use per heated surface area should decrease by 20 % before the year 2020 and by 50 % before the year 2050 compared to the use in the year 1995. The dependence on fossil fuels should end by the year 2020 and the part of renewable energy should increase continuously.

The earth and its resources are actually a loan to us human beings, and we have to learn to consider it as such. We have not inherited the earth from our parents but it is a loan from our children.



Energy-Saving Housing – A Necessity in the Future

Increasing energy prices and tougher environmental demands make it necessary to save the earth's energy resources and care for the environment. Since housing and premises account for about 40 % of Sweden's total energy use, we see a big possibility of contributing to a change. With knowledge and technology Saint-Gobain Isover contributes to new, more sustainable building and construction methods for housing.

Sustainable Solutions with Reliable Technology

Insulating buildings with mineral wool is a reliable solution that has been used for several decades. Already in the 1970's many Swedish home owners installed additional insulation, as they suffered from an increase in energy prices during the oil crisis. Today the houses are better insulated right from the start. But present standards are not sufficient if we look ahead.

Isover Multi-Comfort House

Energy is expensive and will certainly not be cheaper in the future. In order to save the environment and lower our costs we need to consume less energy. The vision of the Swedish The Ecocycle Council* is already fully feasible at Saint-Gobain Isover: housing designed and constructed in a way that minimizes the environmental impact. With reliable technology we have created the energy efficient constructions of the future. The concept is called Isover Multi-Comfort House. The houses have no traditional heating system but are heated with the help of passive heating. The energy use is extremely low, see table.

Building Sector Far Ahead

Passive houses exist in Sweden and Europe and the experience is good. The fact that this technology has not yet had a bigger impact could seem a bit strange. In the building sector we have come far, compared to the automotive business where new technology for cleaner motors and alternative fuel is still at the stage of development. A lot of information work will be needed from the construction business as well as probably also political means of control in form of changed standards, before Multi-Comfort House will have its big breakthrough.

Energy consumption, kWh per m ² and year	
Older houses	200
Houses built according to present rules of construction	80-100
Low-energy houses	30-50
Isover Multi-Comfort House	30

**In the Swedish The Ecocycle Council all parties in the building and real estate sectors work together with a common engagement to obtain a sustainable environment. Almost all of the organizations within the building sector participate.*



Insulation – First Measure

There are many possible measures to be taken in order to lower the energy use in buildings. However, before starting any work it is important to think about what measures are suitable and, above all, in what order they are to be carried out. Of course, such an energy overview has to be adapted to each specific object, since the requirements differ.

Order of Priority

The principle when constructing a low energy house is to start by minimizing the heating and cooling needs of the building and to end by choosing an energy source. This principle can be applied to all kinds of buildings and is recommended by both energy companies and energy counsellors. So before investing large amounts in a new heating system there are a lot of things you can do, for instance carry out a control of the insulation as a number one priority. In the end it might be that these efforts will be sufficient enough to obtain an acceptable level of energy use.

Climate envelope

In order for the energy saving measures to have full effect it is of utmost importance that the climate shield functions effectively. The climate shield consists of the parts of the building which define heated parts of a house from the ground, the outer air or a non-heated area. It consists of several parts, as for instance windshield, insulation, airtightness and so on. In an Isover Multi-Comfort House the climate shield has to be very well insulated and airtight. It is also important to add properly dimensioned ventilation systems,

heating and heat recycling. All these components influence the energy use of the house. This is why everyone who works in housing must see the building as one entity – an energy system of its own.

Sustainable Building – Good Business

Building energy-saving houses with excellent comfort is not only fully possible but also good business on a long-term basis. Building Life Cycle Cost is often mentioned as a parameter, consisting of the construction cost on the one hand and the operation and maintenance cost on the other. The additional cost for improved construction and components in an Isover Multi-Comfort House is for the larger part compensated for by the cost saving with regard to the heating system. In addition to this the low operating cost and gives an extremely low Life Cycle Cost. It is not only an economical saving, but also an environmental gain!

Insulate and Protect Our Environment

Insulation is the most cost-efficient method to lower the greenhouse gas emissions, giving great savings both with regard to lowered energy cost and an improved environment.

All energy production and consumption is a strain on the environment. Energy might be one of the resources that will become scarcity it is important to keep the consumption to a minimum. This is where such a simple thing as insulation could be the best solution.



Insulation from Isover – Many Environmental Advantages

In addition to having very good insulating qualities which contribute to a lower energy use, glass wool from Isover has many other environmental advantages.

Insulation – An Environmentally Friendly Product

By insulating buildings and constructions the energy use decrease. Since this energy is saved it does not need to be produced and cause any emissions. This is why insulation is an excellent environmentally friendly product. Glass wool from Isover saves energy and money year after year. It does not require any maintenance and serves its purpose throughout the life cycle of the building. By insulating buildings we can contribute to a better climate without any major expensive efforts.

Recycled Raw Materials

During manufacture of Isover glass wool a large amount of recycled raw materials is used. About 70 % of the raw materials consist of recycled glass from households. We also re-use glass wool waste from the manufacturing process. This is why glass wool from Isover is an environmentally friendly choice.

Compression

Mineral wool from Isover is compressed to a fifth of its original volume. This means big environmental advantages when transporting and also a decreased number of pallets and wrapping. At the same time, compressed packing facilitates the handling and stock keeping of the products.

Transport

Compression makes our products ideal to transport. The packages contain a maximum of insulation and need less space, which reduces the number of transports needed considerably. The result is that our clients do not have to pay for air and the environment is saved by less exhaust fume emissions. Thanks to compression, our lorries save more than 1 million litres of diesel each year.

Long Life Cycle

The Isover glass wool has a long life cycle and lasts as long as the construction in which it is assembled. Seen over the life cycle of a building, insulation can save over a hundred times more energy than what is needed for manufacturing, transport and assembly of the same.

ISOVER Enkelt att isolera



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