Fiber Glass and Mineral Wool Insulation – Materials for a Sustainable Planet

Information from NAIMA

One of the primary considerations in design and construction is sustainability — building for longevity while conserving the environment. Today’s architects, specifiers and builders are choosing building products more diligently than ever before. They want products that are energy efficient, conserve virgin resources, minimize waste, and reduce pollution. Fiber glass and mineral wool insulation meet these considerations.

Reduce Energy Waste
One of the most important environmental benefits of fiber glass and mineral wool insulation is their ability to make buildings more energy efficient. A well insulated building reduces the amount of energy required to maintain a comfortable environment and conserves nonrenewable fuel supplies.

Lower Air Pollution
Reduced energy consumption translates into a reduction of air pollutants. Almost a quarter of possible emission reductions would result from measures (such as better insulation in buildings) that carry no net life cycle cost - in effect, they come free of charge. A well insulated home reduces the amount of energy required to maintain a comfortable living/working environment.

Decrease Demand on Virgin Resources
Using recycled materials in the manufacture of insulation prevents depletion of natural resources. Today’s fiber glass insulation contains an average of 50% (and up to 60%) recycled glass, depending upon the manufacturer and the specific facility. Rock wool insulation contains 10-15% recycled blast furnace slag, and slag wool insulation contains approximately 70-75% recycled blast furnace slag.

A Typical Pound of Fiber Glass and Rock and Slag Wool Insulation Saves Twelve Times as Much Energy in Its First Year in Place as the Energy Used to Produce It.²

The North American Insulation Manufacturers Association (NAIMA), tracks the use of pre- and post-consumer recycled materials in its members’ insulation products. The most recent survey showed that in 2017 NAIMA member companies in the United States and Canada used more than 3.2 billion pounds of recycled glass and blast furnace slag in the production of residential, commercial, industrial and air handling thermal and acoustical insulation.

More specifically, the data showed that in 2017 facilities in the United States used more than 2.2 billion pounds of recycled glass.
Retrofitting existing single-family homes in the United States would yield an estimated 800 Trillion BTU of annual energy savings (approx 134 million barrels of oil), which corresponds to net present value economic gains of approximately $80 billion and public health benefits that include 320 fewer premature deaths per year. 3

The data for Canadian facilities showed that in 2017, 346 million pounds of recycled glass was used in the production of residential, commercial, industrial and air handling thermal and acoustical insulation. U.S. and Canadian facilities reported a combined use of over 675 million pounds of recycled blast furnace slag in 2017. Data from NAIMA’s recycling survey are available upon request.

Installed insulation in U.S. buildings prevents the emission of over 1.56 trillion pounds of carbon dioxide annually...that means that total U.S. carbon dioxide emissions would be almost 15% higher without insulation. 4

Fiber glass insulation is the second-largest user of glass cullet. 5

Industry Reduces Waste
Some insulation manufacturers have instituted conservation measures including:
1. Re-engineering manufacturing processes to incorporate production scrap back into the primary production process or to reprocess it into other products.
2. Using compressed packaging to cut energy requirements for transportation by allowing more insulation to be shipped in each truck.

Saves Landfill Space
Using materials derived from secondary sources not only reduces the demand on virgin resources, it saves landfill space by diverting glass containers and blast furnace slag from the solid waste stream. Since the industry’s recycling program began in 1992, NAIMA members’ plants have diverted more than 58.2 billion pounds of recycled materials from the waste stream.

References

About NAIMA
NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

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