



# Fiberglass, Rock and Slag 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 rock and slag wool insulation meet these considerations.

### Reduce Energy Waste

One of the most important environmental benefits of fiber glass and rock and slag 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.<sup>1</sup> 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.

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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.<sup>2</sup>

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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 2018 NAIMA member companies in the United States and Canada used more than 3.6 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 2018 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 240 FEWER PREMATURE DEATHS PER YEAR.<sup>3</sup>

The data for Canadian facilities showed that in 2018 almost 381 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 982 million pounds of recycled blast furnace slag in 2018.

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.<sup>4</sup>

## 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 61.8 billion pounds of recycled materials from the waste stream.

FIBER GLASS INSULATION IS THE SECOND-LARGEST USER OF GLASS CULLET.<sup>5</sup>

## 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.

## An Industry Committed to Environmental Preservation

*NAIMA member companies have a longstanding commitment to the promotion of energy efficiency and environmental preservation. They support a number of voluntary programs such as ENERGY STAR and the USGBC LEED in the United States, as well as the R-2000, The Canadian Green Building Council, and Energy Star for Homes Program in Canada.*

## References

1. *A Cost Curve for Greenhouse Gas Reductions*, The McKinsey Quarterly, Number 1, 2007.
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3. Jonathan I. Levy, Yurika Nishioka and John D. Spengler, "The public health benefits of insulation retrofits in existing housing in the United States," *Environmental Health: A Global Access Science Source*, April 2003, p15.
4. *Green and Competitive: The Energy, Environmental, and Economic Benefits of Fiber Glass and Mineral Wool Insulation Products*. Energy Conservation Management; The Alliance to Save Energy; and Barakat & Chamberlin, 1996.
5. California Integrated Waste Management Board, *Market Status Report, Container & Plate Glass*, CIWMB.ca.gov/markets/StatusReport.Glass.html; Chaz Miller, *Glass Containers*, Wasteage.com/Recycling\_And\_Processing/Andwaste\_glass\_containers\_4/.

## 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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