



# 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. Fiberglass and rock and slag wool insulation meet these considerations.

### Reduce Energy Waste

One of the most important environmental benefits of fiberglass 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 fiberglass 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 slag, and slag wool insulation contains approximately 70-75% recycled slag.

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A TYPICAL POUND OF  
FIBERGLASS 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 2024 NAIMA member companies in the United States and Canada used more than 3.0 billion pounds of recycled glass and slag in the production of residential, commercial, industrial and air handling thermal and acoustical insulation.

More specifically, the data showed that in 2024 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 2024 more than 386 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 338 million pounds of recycled slag in 2024.

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 slag from the solid waste stream. Since the industry's recycling program began in 1992, NAIMA members' plants have diverted more than 106.5 billion pounds of recycled materials from the waste stream.

FIBERGLASS 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 fiberglass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiberglass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

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### NAIMA Member Companies:

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Armstrong Ceilings  
Milwood, WV  
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