



LEED® and Sustainable Design

WHAT IS SUSTAINABLE DESIGN?

Sustainable buildings are high-performance buildings. Measuring sustainability means measuring the performance of a building's materials, equipment and systems by their contributions to indoor environmental quality, energy efficiency and environmental impact through the full life cycle of production, integration, operation, disposal and reuse.

JM works to ensure a more comfortable environment, both within the walls of your building, throughout mechanical systems and in the environment we share.



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INDOOR ENVIRONMENTAL QUALITY AND FORMALDEHYDE

The World Health Organization estimates that as many as one-third of all new and remodeled commercial buildings are plagued by indoor air quality problems, both during construction and after building completion. Sick-building syndrome is caused by construction deficiencies, chemical contaminants from both indoor and outdoor sources, and biological contaminants.

At Johns Manville we were the first to have developed a **complete line of fiber glass insulation made without formaldehyde** using an innovative acrylic binder that **will not off-gas formaldehyde into the indoor environment**. Why is that important?

JM Formaldehyde-free™ fiber glass insulation—as a smart alternative to formaldehyde-based building materials—helps achieve a healthier and safer building by reducing overall indoor formaldehyde exposure. JM Formaldehyde-free™ fiber glass insulation also helps meet California Air Resource Board recommendations to use building materials (including insulation) with no added formaldehyde¹ and U.S. EPA recommendations to minimize your exposure to formaldehyde².

THE ENVIRONMENT

JM strives to be a good steward of the environment; to that end, we used pollution-prevention measures to reduce annual hazardous emissions by more than 200,000 pounds. **Now our fiber glass manufacturing plants are so low emitting they are exempt from EPA Hazardous Air Pollutant regulations.** In addition, each year, JM fiber glass insulation saves 12 times the amount of energy used to produce it.

RECYCLED CONTENT

Carefully choosing building materials—along with proper detailing, ventilating, finishing, use and maintenance—contributes to healthier, more comfortable, environmentally smart and sustainable buildings. JM fiber glass insulations are manufactured with varying amounts of post-consumer and post-industrial recycled content (a North American average of 25 percent)³, **reducing the impact on local landfills by 90,000 tons.**

MORE REASONS TO SPECIFY JM:



5% Pre-consumer
20% Post-consumer
SCS CERTIFICATION SYSTEMS
SCS-INC-01073

PLUS FORMALDEHYDE FREE
SCS CERTIFICATION SYSTEMS
SCS-IAQ-02088



1. California Air Resources Board, *Indoor Air Quality Guideline*, August 2004, "Formaldehyde in the Home." See arb.ca.gov/research/indoor/formaldGL08-04.pdf.

2. Comments of EPA on LEEC-NC Version 2.2; Response to Comments on Draft Standard for Indoor Environmental Quality, *Indoor Environmental Quality Prerequisite 1*. See epa.gov/iaq

3. North American average of 25 percent certified by Scientific Certification Systems.



JOHNS MANVILLE AND LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

The Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™ is the nationally accepted benchmark for the design, construction and operation of green buildings. Below is an easy-to-use reference list of several LEED prerequisites and point opportunities where JM fiber glass insulation may contribute. When you consider the impressive sustainability of JM insulation, it doesn't make sense to specify anything else. For a complete understanding of the LEED green building certification program, please reference the U.S. Green Building Council® website (usgbc.org/leed).

LEED Version 3 and JM Fiber Glass Insulation

Credit Classification:	Points*	Comments:
Energy and Atmosphere:		
Prerequisite 2: Minimum Energy Performance		Establish the minimum level of energy efficiency for the proposed building and systems.
Credit 1: Optimize Energy Performance	1–19	Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.
Credit 2: On-site Renewable Energy	4–7	To encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.
Materials and Resources:		
Credit 4: Recycled Content	1–2	Increase demand for building products that incorporate recycled content materials, thereby reducing the impacts resulting from extraction and processing of virgin materials.
Credit 5: Regional Materials	1–2	Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.
Indoor Environmental Quality:		
Credit 3.2 Construction IAQ Management Plan: Before Occupancy	1	Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.
Innovation in Design:		
Credit 1: Innovation and Design Process	1–5	To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in green building categories not specifically addressed by the LEED Green Building Rating System.

*Achievable points in which JM insulations contribute to credit areas.



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The JM Role in Sustainable Design

Throughout the entire product life cycle, JM fiber glass insulation products support our commitment to sustainable building.

Pre-Manufacturing	Fiber glass is made from recycled glass and sand, a rapidly renewable resource with little impact on non-renewable resources.
Manufacturing	In a single year, JM insulation saves 12 times the energy used to produce it. The energy used in manufacturing is immediately replenished.*
Packaging and Transportation	Fiber glass is more compact than other insulations, so it requires less packaging and is shipped more efficiently with less fuel.
Product Characteristics	The fiber glass insulation produced in a year saves 400 trillion Btu annually.*
Use, Reuse and Maintenance	Unlike most other insulating materials, JM batts, rolls and blow-in products can be removed and put back in place. It requires no maintenance and lasts for the life of a building.
Recycling and Disposal	JM recycles significant amounts of glass in making fiber glass insulation, reducing the burden on landfills.

FIBER GLASS SAFETY

In October 2001, a review by the International Agency for Research on Cancer (IARC) removed fiber glass insulation from its list of possible carcinogens. This is consistent with the conclusion reached by the U.S. National Academy of Sciences, which in 2000 found "no significant association between fiber exposure and lung cancer or nonmalignant respiratory disease in the MVF [man-made vitreous fiber] manufacturing environment."

Fiber glass insulation is one of the most thoroughly tested building materials in use today. Over 50 years of research and review by government and independent research organizations supports the conclusion that fiber glass is safe to use in your residential and commercial buildings.

*Source: North American Insulation Manufacturers Association (NAIMA).