



Mechanical Insulation
EDUCATION TRAINING ADVANCEMENT

The Foundation for **Education, Training, and Industry Advancement**

2022 ANNUAL REPORT



Foundation for Education, Training, and Industry Advancement

The Foundation for Mechanical Insulation Education, Training, and Industry Advancement (Foundation) is a tax-exempt 501(c)(3) organization and its primary purpose is to develop and implement strategies and recommend processes to advance and expand the commercial and industrial insulation industry through objectives such as introducing the National Insulation Association (NIA) to the commercial/industrial construction community; promoting the value of insulation to audiences including specifiers, architects, engineers, plant owners, facility managers, building owners, government bodies, and allied associations; and establishing NIA as the industry resource for information on mechanical, commercial, and industrial insulation systems.

The Foundation continued its work in 2022 to promote the commercial and industrial insulation industry to end users, specifiers, architects, energy managers, plant operators, building owners, facility managers, government agencies, and strategically aligned partners.

2022 Accomplishments: Data and Educational Development

The Foundation recognizes and supports the need for industry data to reinforce the importance of mechanical insulation. In 2022, the Foundation analyzed current survey methodologies and considered the need for new data, which resulted in the following initiatives:

INSULATION INDUSTRY OPPORTUNITY STUDY

The Foundation funded a study to determine how the United States can reduce greenhouse gas emissions by investing in easily achievable insulation improvements to existing single-family homes, commercial buildings, and industrial facilities.

[View the press release dated September 13, 2022: Independent Study Confirms Insulation Upgrades are Keys to Significant Energy Savings and Emission Reductions in Existing Buildings.](#)

ICF, an international consulting firm with expertise in the energy and energy efficiency sector, undertook the analysis. An executive summary follows. [Click here to access the final report.](#)

Executive Summary: Insulation is a cost-effective, easy to install product that delivers energy savings for the life of the building. With building operations accounting for approximately 30% of annual greenhouse gas (GHG) emissions in the United States, installing air seal-

ing and insulation products is the first, best step toward decarbonizing our built environment.

A coalition of national insulation trade associations commissioned ICF, an international consulting firm with expertise in the energy and energy efficiency sector, to undertake an analysis based on a simple proposition: how much can we reduce U.S. greenhouse gas emissions by investing in easily achievable insulation improvements to existing single-family homes, commercial buildings, and industrial facilities. As a result of the study, we learned the opportunity associated with simple insulation measures is immense and can significantly contribute to lowering emissions attributed to buildings. The impact is the equivalent of increasing current wind production by 135% or offsetting the emissions associated with 40% of all-natural gas-fired generation in the United States.

Key Findings

Residential Buildings

- **Large savings potential for existing homes.** ICF estimates that energy savings ranging from 10 to 45% can be achieved in existing homes that are air sealed and have insulation added in the ceiling and floors (and walls in very limited circumstances) to levels prescribed by the 2021 International Energy Conservation Code.

Foundation Board of Directors

The Foundation Board of Directors oversees efforts to develop and implement strategies and recommend processes to advance and expand the commercial and industrial insulation industry.

2022 Board of Directors



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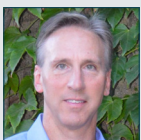
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- **Expected long-term carbon reductions.** Nationally, this retrofit activity could yield roughly 10 billion tons of carbon emissions over a fifty-year period—the minimum useful life of building insulation.

Commercial Buildings

- **Savings seen in all commercial building types.** ICF analyzed a range of commercial buildings, including schools, small to midsize office buildings, midrise apartments, and stand-alone retail, applying customary ASHRAE 90.1-2019-compliant roof insulation upgrades and pipe insulation improvement. While savings vary by building type, the national average for whole building energy savings is approximately 5%, with nearly 70% of those savings resulting from decreased natural gas usage, which would also reduce GHG emissions.
- **Significant opportunity in education subsector.** Nationally, primary schools would reduce annual energy use by an average of nearly 9% by incorporating these insulation improvements, while secondary schools would average energy savings of more than 7%.

Industrial Facilities

- **Exceptionally short payback periods.** ICF found that making pipe and mechanical insulation improvements to industrial facilities in eight major industrial sectors (i.e., chemical, food, paper, plastic, etc.) would save the industrial sector more than \$126 billion in energy costs based on an average capital cost of \$3.77 billion. The average payback on this investment is only about one year. For many industrial sectors, the payback is as little as 6 months. This energy reduction translates into carbon emissions prevented.
- **Insulation aids in transition to electrification.** Energy savings from insulation upgrades can reduce natural gas use by 118 billion therms across the U.S. industrial sector and help reduce demand on the electric grid as electrification technologies roll out.

Conclusion

Making common sense insulation improvements to buildings, facilities, and plants yields enormous energy cost savings to consumers and drives tremendous greenhouse gas emission reductions. The emission reduction potential resulting from buildings, facilities, and plants considered in this study would drive annual CO₂ equivalent emission reductions of nearly 282 million tons and lifetime CO₂E emission reductions of more than 11.5 billion tons. Perhaps most importantly, insulation improvements can be implemented immediately with off-the-shelf technology, while allowing longer-term investments and electrification technologies to be planned and deployed.

INDUSTRY MEASUREMENT SURVEY

Every 2 years, the Foundation works with Industry Insights, an independent third-party company, to conduct a survey to gauge the size of the insulation industry. This survey began in 1997 and seeks to gain data about the size of the insulation industry and growth rates for the U.S. commercial and industrial mechanical insulation market. The latest survey will be conducted in early 2023. (To access the 2021 survey results, visit <https://insulation.org/io/articles/nia-surveys-confirm-market-expectations-and-forecast-growth-in-2021-2022/>.)

As the mechanical insulation industry has evolved, and as the need for additional industry data has surfaced, the recent survey will collect a wider range of information than has been collected in previous years.

It became apparent during the survey data collection for the 2021 report that with industry consolidations, the increased use of flexible removable/reusable covers, changing mechanical insulation systems, and other similar changes that we needed to explore a different approach for the 2023 survey.

In past surveys, we have asked NIA member companies to report one overarching number for mechanical insulation industry products. In January 2023, survey respondents will be asked to report separate numbers in various product groups for the products they represent in the United States mechanical insulation market. There are multiple reasons for this change in reporting. It will:

1. Allow us to provide Industry Insights with the necessary formulas to account for the cost of fabrication.
2. Allow us to report an estimated national market share by the overarching product group.
3. Potentially lead to a general separation in determining the size of the commercial and industrial markets.

We look forward to sharing the results of the survey in an upcoming 2023 issue of *Insulation Outlook* magazine.

MECHANICAL INSULATION ENERGY AND CARBON REDUCTION SURVEY

The mechanical insulation industry has long emphasized the impact mechanical insulation can have on energy savings and the reduction of carbon emissions. Given the current focus on both of those topics, our industry has never been in a better position to demonstrate that environmental impact.

Currently, many governmental agencies, engineering firms, and facility owners are evaluating a host of initiatives to reduce their carbon footprints while reducing energy demands. Our industry understands the positive impact mechanical insulation can have on the environment, but we need facts and figures to demonstrate the results of our proven technology.

The next generation entering the workforce will continue to increase the focus on sustainability efforts, and they want information on the past, present, and future impact mechanical insulation can deliver.

Subject matter experts have developed a new methodology, that with the help of select manufacturers, will allow us to estimate the total energy savings and emission reductions in higher-service temperature ranges (150°F–1,200°F).

Our objective is to determine the energy savings and carbon reduction impact of mechanical insulation based upon:

1. Current mechanical insulation usage levels
2. Past usage (5-year estimate)
3. Estimated impact for the next 5 years and
4. Estimated missing and/or damaged insulation for the last 5 years and forecast of the next 5 years.

Results are expected in late Q1 2023, and we hope to have survey results available in early Q2.

Building up Industry Training and Education Resources

In December 2022, NIA, through generous contributions by the Foundation, debuted the NIA Education Center, a new concept in training and education for the insulation industry to meet the growing need for easily accessible, on-demand training from a trusted industry source. With nearly 40 topics available now and more in development, it is the go-to national resource for information and training tools specifically designed for anyone who is involved in the mechanical insulation industry.

With Foundation funding used for content development, 20 to 30 courses are expected to be added to the Education Center each year. In 2022, the Foundation supported the development of the following courses:

FREE INDUSTRY RESOURCES-AVAILABLE TO EVERYONE

- Insulation Materials Specification Chart
- Guide to Insulation Product Specifications
- Insulation Science Glossary
- Mechanical Insulation Design Guide
- Insulation Calculators

RESOURCES AVAILABLE TO NIA MEMBERS ONLY

- Select microlearning courses (ranging from a few minutes to 1 hour)
- Access to new sponsored and partner webinars, as well as previously recorded webinars
- Exclusive member programs (Safety Excellence Awards, Premier Industry Manufacturer Award, NIA's Insurance Program, etc.)
- *NIA News*, NIA's members-only newsletter
- Free gift subscriptions to *Insulation Outlook* magazine for your employees and clients
- NIA's annual *Buyer's Guide: Insulation Products and Providers* (with your company listed)
- Exclusive access to the *NIA Diversity & Inclusion Tool Kit*

NIA's Education Center

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NIA National Insulation Association
THE EDUCATION LEADER FOR THE INSULATION INDUSTRY

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- Thermal Insulation Inspector Certification™
- Understanding Specifications
- Understanding the Submittal Process

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Featured Courses

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- What You Need to Know Before an OSHA Compliance Inspection**
Education session will provide an overview of the OSHA inspection process and explain your rights as an employer.
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- What Does the Future of Transportation Look Like?**
Learn about current logistics and distribution challenges, including labor shortages and retention, supply chain disruption, fuel surcharges, and more.
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- Mechanical Insulation Basics**
Explains the types of insulation on the market, the science and technology of how insulation works, design questions that should be asked for every project.
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- The Importance of a Written Safety Program**
Education session will provide the key components of a successful safety management program and how you can implement a program for your business.
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- Human Resources for Small Contractors**
Education session will examine a variety of human resources policy and procedure topics.
[View Course >](#)
- What's New in Version 5.1 of 3E Plus®**
An overview of the improved features of the updated online platform.
[View Course >](#)

Need help?

NIA is available to assist you with any questions you may have as you navigate through NIA's Education Center. Please contact NIA at info@niamembers.org or 703-474-5422 if you have any questions.

• New Content:

- Chilled Water and Refrigeration Insulation Systems
- Guide to Insulation Fastening
- Insulation Selection for Power Generation
- Passive Fire Protection in Industrial Applications
- Safety Update: Heat Illness Prevention
- What's New in Version 5.1 of 3E Plus®
- 3E Plus® Basics

Resources Available with Premier Training Subscription

These additional resources are available with an annual subscription fee, which gives companies and its employees access to exclusive content in addition to the free and members-only resources listed above.

- Mechanical Insulation Basics (formerly known as the E-Learning Modules)
- Mechanical Insulation Installation Videos
- **New Content:**
 - Breathable and Non-Breathable Coverings
 - Emittance
 - FMI's Economic Forecast–Northeast Region
 - Harassment in the Workplace
 - Hitting the Jackpot with DOE's Carbon Emissions Reduction Programs
 - Human Resources for Small Contractors
- Hydrophobic, Hydrosopic, and Water Resistant—What Are the Differences?
- Mechanical Insulation Shapes and Forms
- Outcomes from FMI's Talent Development Study
- Passive Fire Protection vs. Fire Protection
- Product Density vs. Compressive Strength
- Protective Covering–Categories
- Protective Covering–Types
- Selling in a Virtual World
- The Importance of a Written Safety Program
- Use Temperature
- What Does the Future of Transportation Look Like?
- What You Need to Know Before an OSHA Compliance Inspection
- Vapor Stops

U.S. Department of Energy (DOE) Requests for Information (RFI)

Throughout 2022, the Foundation responded to requests for information (RFI) from the U.S. Department of Energy (DOE). When appropriate, the Foundation provides information about resources that NIA can provide and the educational and training opportunities available to answer the challenges presented in the RFIs.

September 2022, Request for Information on Barriers and Pathways to Integrating Onsite Clean Energy Technologies in the Industrial Sector, DE-FOA-0002830

Purpose: The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, utilities, and other stakeholders on issues related to the deployment of onsite clean energy and storage technologies, including solar, solar thermal, wind power, renewable fuels, geothermal, battery storage, and thermal storage, at industrial facilities. The Office of Energy Efficiency & Renewable Energy (EERE) is specifically interested in information on the key barriers that manufacturers are encountering during technology evaluation and implementation of clean energy projects. EERE is also interested in the current state of knowledge

and uptake of onsite clean energy technologies, existing technical assistance and resources for project evaluation and deployment, and potential pathways for accelerating the integration of clean energy technologies in the industrial sector.

[Click here to review the Foundation's response.](#)

May 2022, Bipartisan Infrastructure Law (BIL)—Request for Information on Energy: Improvements at Public School Facilities, DE-FOA-0002715

Purpose: The purpose of this RFI is to solicit feedback from local education agencies (LEAs), school staff, states, local governments, energy service companies, clean energy finance providers, labor unions, service providers, utilities, researchers, community partners, manufacturers, and other stakeholders on issues related to program development and execution of BIL Section 40541. EERE is specifically interested in information on 1) capacity development and technical assistance needs of applicants and their stakeholders and partners; 2) how to define, support, and leverage the needs assessments required of applicants; 3) appropriate criteria

and metrics; 4) workforce development and supporting high-quality jobs; 5) potential partnerships structures and models to achieve the goals of the provision and maximize impact; and 6) pathways and models to leverage the financial investments to reach more facilities and achieve deeper impact.

[Click here to review the Foundation's response.](#)

May 2022, Bipartisan Infrastructure Law (BIL): Request for Information: Resilient and Efficient Codes Implementation (RECI), DE-FOA-0002755

Purpose: The purpose of this RFI is to solicit feedback from state and local government agencies, building officials, contractors, designers, builders, other industry representatives, community organizations, academia, research laboratories, and other stakeholders on issues related to building energy policy implementation. EERE is specifically interested in information on the Resilient and Efficient Codes Implementation FOA goals and design. A description of this potential Resilient and Efficient Codes Implementation (RECI) Funding Opportunity Announcement (FOA) and key questions posed in this RFI are outlined in the following sections.

[Click here to review the Foundation's response.](#)

February 2022, Request for Information on Industrial Decarbonization Priorities, DE-FOA-0002687

Purpose: The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to research, development, demonstration, and deployment of technologies to address the technical challenges related to emissions reduction and decarbonization of the U.S. industrial sector. EERE is specifically interested in information on aspects of industrial decarbonization associated with key industrial sectors, including chemicals, iron and steel, food and beverages, and cement, in addition to other manufacturing industries or crosscutting technology areas that would have a substantial level of emissions reduction in the industrial sector.

[Click here to review the Foundation's response.](#)

Strategic Partnerships and Coalitions

Activities in 2022 included:

- Continued our relationship, through a memorandum of understanding, with the Energy Management Association (EMA) to support each other in promoting areas of mutual interest.
- Discussing programs and initiatives that could benefit the commercial and industrial insulation industries with representatives of the U.S. DOE.
- Exploring areas of opportunity with DOE's Industrial Assessment Center (IAC) representatives.

Marketing the Thermal Insulation Inspector Certification Program and the Importance of Inspection of Insulation for Mechanical Systems

NIA's marketing efforts related to the benefits of the inspection process and the Thermal Insulation Inspector Certification Program remained a focus in 2022.

Work continued with guide specification organizations such as MasterSpec, Midwest Insulation Contractors Association (MICA), and Process Industry Practices (PIP) for inclusion of inspection language in their respective documents. In addition, we are happy to report that the following NIA Associate member companies have either included or are in the process of including inspection language in their guide specifications:

- Aeroflex USA
- Alpha Engineered Composites, LLC
- Armacell
- CertainTeed
- Duna USA, Inc.
- Foster Products (HB Fuller Construction Products)
- Howred Corp.
- Johns Manville
- K-Flex USA, LLC
- Kingspan Insulation, LLC
- Knauf Insulation, Inc.
- Lewco Specialty Products, Inc.
- Owens Corning
- Polyguard Products, Inc.
- Proto Corporation
- R.P.R Products, Inc.
- ROCKWOOL Technical Insulation

Supporting Our Success: Thank You to Our 2022 Foundation Contributors

The Foundation is funded primarily through voluntary contributions from more than 50 member companies, regional associations, and industry organizations that support the mission of the Foundation and believe in its ability to advance the industry.

It is important to know that the scope of work that the Foundation operates within is based on the contributions it receives. All activities are prioritized based on funds available and with the oversight of the Foundation Board; priorities are constantly reviewed and shifted based on funding fluctuations. The Foundation will also be exploring grant opportunities to increase available funding for new programs.

Our contributor stakeholders believe that our industry will grow when our external audience is educated on the benefits of insulation. This commitment and forward-thinking stance align with the mission of the Foundation and sustains its future.

Companies within the mechanical insulation industry are busy managing their own businesses. By supporting the Foundation with your contribution, you allow us to promote industry awareness and educate the external audience on your behalf at a fraction of the cost compared to your company doing it independently. Imagine what could be accomplished if every company who provides mechanical insulation products and services contributed?

A sincere thanks to the following companies and organizations that supported the Foundation in 2022:

Gold-Elite

(\$15,000 Voluntary Annual Contribution)

- 3M
- Distribution International, Inc.
- Johns Manville
- Knauf Insulation, Inc.
- Owens Corning
- Performance Contracting, Inc.
- ROCKWOOL Technical Insulation
- Specialty Products & Insulation

Gold

(\$5,000 Voluntary Annual Contribution)

- Aeroflex USA
- Alpha Engineered Composites, LLC
- Armacell
- Caldwell Insulation, Inc.
- Eastern States Insulation Contractors Association
- Insulation Contractors Association of New York City
- Insulation Materials Corp.
- Irex Contracting Group
- Lamtec Corp.
- Thermal Insulation Association of Canada

Silver

(\$3,000 Voluntary Annual Contribution)

- Midwest Insulation Contractors Association
- R.P.R. Products, Inc.

Bronze

(\$1,000 Voluntary Annual Contribution)

- Advanced Industrial Services, LLC
- Advanced Specialty Contractors, LLC
- Atlantic Contracting & Specialties, LLC
- Delaware Valley Insulation and Abatement Contractors Association, Inc.
- Dover Insulation, Inc.
- Geo V. Hamilton, Inc.
- Heat Frost and Thermal Insulation Education Fund
- Hudson Bay Insulation Co.
- Ideal Products of America, LP
- I-Star Energy Solutions
- Kennedy Insulation Systems, Inc.
- K-FLEX USA, LLC
- L & C Insulation, Inc.
- Luse Thermal Technologies
- Midwest Materials Co.
- Petrin, LLC
- Shook & Fletcher Insulation Co.
- Southeastern Insulation Contractors Association
- Western Insulation Contractors Association

Looking Ahead

We hope, with the generous contributions from our supporters, to focus on the following:

- Continued content development for modules to be included in [NIA's Education Center](#).
- Marketing the inclusion of inspection requirements in specifications and working with manufacturers to include inspections in the specifications.
- Provide presentations to various industry groups and government agencies on the value of mechanical insulation, the need for improved specifications, and the need for insulation inspections.
- Conducting the biennial Industry Measurement Survey and Mechanical Insulation Energy and Carbon Reduction Study.
- Continue the strong relationship built with the U.S. DOE and its numerous affiliates such as the Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, Better Buildings, Industrial Assessment Centers, and others.
- Work along with and develop strategic relationships with groups and organizations that can positively impact the use and awareness of mechanical insulation, including organizations such as the American Council for an Energy-Efficient Economy, Insulation Industry Association Council, Process Industry Practices, the Association of Energy Engineers, Association of Facilities Engineers, Energy Management Association, Inspectioneering, Association for Materials Protection and Performance (formerly NACE), and others.
- Review government and other funding opportunities that would positively impact mechanical insulation.
- For information about contributing to the Foundation, please visit www.insulation.org/foundation.

www.insulation.org/foundation

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