

Mechanical Insulation, The Forgotten Technology

For decades, mechanical insulation has been overlooked as one of the premier energy savers in the construction industry. There are few building components that offer the timely payback of mechanical insulation, yet it is one of the first things to be reduced or eliminated from projects that are over budget. The elimination or reduction of insulation from mechanical systems does not just cost in fuel consumption, it costs in other ways too. The lack of proper mechanical insulation shortens the life of the mechanical components. Pumps, fans, chillers, and most other equipment have a shorter life span because they have to work harder to get the same results. Reducing or eliminating mechanical insulation has global implications as well, as this increases greenhouse gas emissions.



*by Alec Rexroat, Executive Director,
Illinois Regional Insulation
Contractors Association*

So how does it happen that something so beneficial to the building and to society, both short- and long-term, is reduced or eliminated from the scope? It is mostly due to budget restraints on new construction and building renovation. When the building comes in over budget all contractors are asked to “value engineer” their portion of the work. So, in an effort to reduce the cost of the mechanical insulation, the insulation contractor is either told to, or gets creative, and either eliminates mechanical insulation from systems or reduces the thickness of the material. Both material reduction and elimination will cost the owner in the long-term. The budget goal may be achieved but somebody will pay for the lost energy for decades. True “value engineering” would increase the mechanical insulation so the owner would have lower energy costs in the future. Another factor is that the systems will run with or without me-

chanical insulation. It just costs more for the energy. The US DOE estimates that between 10% and 30% of mechanical insulation that should be on mechanical systems, in existing facilities, is either missing or damaged to the point that it is ineffectual.

Mechanical insulation, on average, has some of the best paybacks in building technology. Steam system insulation can pay for itself in six to ten months. Heating hot water (180°F) paybacks can be between eighteen and twenty-four months, and even domestic hot water (120°F) pays for itself in twenty-four to thirty-six months. Obviously conditions and fuel costs can alter these numbers but, generally speaking, the savings are incredible. The North American Insulation Manufacturers Association (NAIMA) created a program called 3ePlus that calculates the energy, greenhouse gas emissions, and costs associated with proper installation of mechanical insulation. 3ePlus has been embraced by the Department of Energy to help establish a benchmark standard for energy consumption and costs.

The global implications of mechanical insulation became apparent during the National Insulation Association’s (NIA) annual convention this past April. The convention was held in conjunction with the World Insulation and Acoustic Congress Organization (WIACO) in Florida. During the convention, CEOs of some of the world insulation manufacturers discussed the global implications of properly installed mechanical insulation. They talked about how the world looks at greenhouse gas emissions, energy consumption, and the markets of the world. Because the world is getting smaller we must do our part in reducing energy consumption, thereby reducing greenhouse gas emissions.

The ISAVE Team was created to promote the proper use of mechanical insulation in the U. S. and Canada. Our contractors and installers are the best in the industry and are shovel-ready to save you money and energy.

The ISAVE Team can be seen at shows of The American Society of Healthcare Engineers (ASHE), The Canadian Healthcare Engineering Society (CHES), National Facilities Maintenance and Technology (NFMT), Congressional Energy Caucus, The World Energy Engineering Congress (WEEC), and many others. The objective is to help your members in securing a quality and professional mechanical insulation contractor.