



**NIA** | National Insulation Association  
THE VOICE OF THE INSULATION INDUSTRY™

# Mechanical insulation, simple technology

I hate when I think I'm buying organic vegetables, and when I get home, I discover they're just regular potato chips.

Some things aren't just as they seem. Even technology has a way of doing that — giving us a head fake that aptly describes paradox and contradiction: the freedom technology gives us today also shackles and tethers us. I just want to park my car — not download an app! Sometimes it feels like technology is taking over our lives.

As I write this, some of us might have watched the Ryder Cup in September. I can certainly appreciate the cool technological advancements brought to the game of golf. Sensor technology has helped golfers in a variety of ways, such as distance-measuring lasers and swing sensors as teaching aids. And don't forget the Trackman Doppler Radar tracking and tracing technology that allows viewers to capture club speed, ball speed, curve, landing spin, launch angle, spin rate, spin axis, apex, carry and more. How did we ever watch golf without that?

But just as technology has brought tremendous gains to the golf experience,

there are times in our lives when good old-fashioned stuff fits the bill just nicely.

Our mechanical insulation industry believes that our products fit that mold of good old-fashioned technology. Mechanical insulation is like that quiet, unassuming person who remains out of the spotlight, yet is dependable and effective. Our mechanical insulation industry believes that unassuming mechanical insulation could play a larger role in enabling these climate goals if it just got more visibility and folks understood the simplistic technology by which insulation generally works — trapping air.

Insulations of all types don't stop heat transfer — they slow it down. The higher the R value or resistance to heat flow of a material, the slower or less efficiently a material conducts heat and allows hot or cold to move through it. Gases, such as air, are excellent insulators because the molecules are such farther apart than solids or liquids thereby making heat transfer very inefficient.

So, think of the simplistic technology behind what makes the invention of

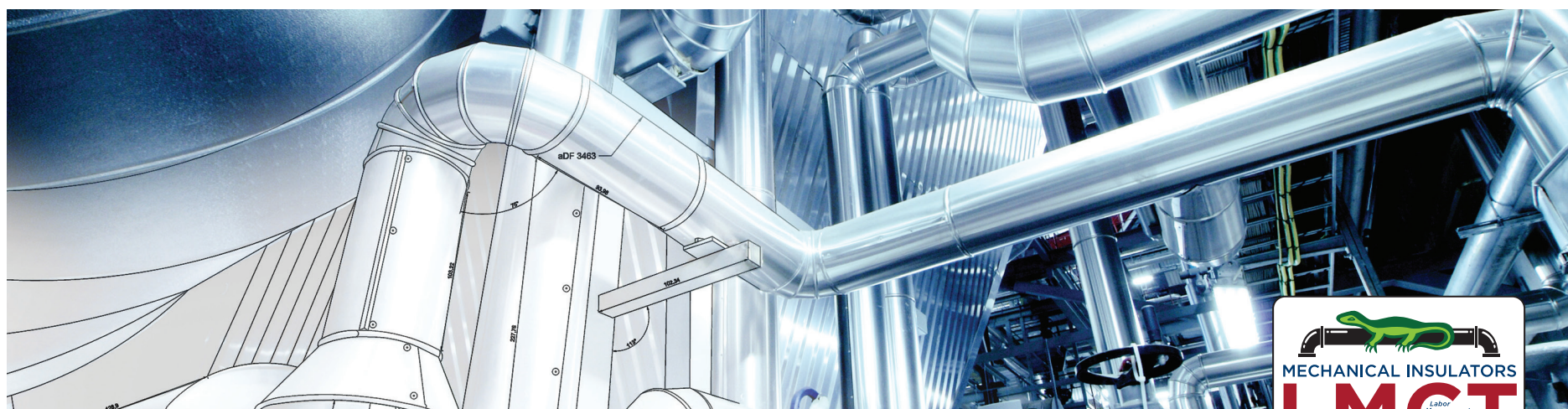
insulation work — simply trapping air. Fibrous or foam insulations create millions of tiny “dead” air spaces that prevent the circulation of air within the insulation. There are other technological advances that allow for higher R values than dead air such as higher R value gases, vacuum panels and nano sized dead air spaces. For example, argon gas does not conduct heat as well as air — thus it has a higher R value — so it's an excellent insulator and it is why double pane windows manufacturers fill the glass void with argon gas over air.

Mechanical insulation is a great example of a simple low-cost, yet highly effective, carbon reduction, especially since many applications are at higher temperatures, that minimize the CO<sub>2</sub> from being emitted in the first place. Here's an example from a U.S. insulation fabricator of documented savings on a 350-degree steam system with only 48 fittings. By adding only 1.5 inches of removable/reusable insulation covers to areas such as valves and steam drums, the result was a 10-month payback on a \$31,000

installed job. Better yet — the CO<sub>2</sub> savings were 444 tons by adding the insulation to these 48 areas. Doing a simple calculation, this comes to a cost of \$70 per CO<sub>2</sub> ton removed, which is much lower and more readily available than other technologies. Just think — something as simple as trapped air can result in these tremendous benefits for the end user.

There are other technologies that focus on CO<sub>2</sub> removal and are much more sophisticated than unassuming mechanical insulation. The Intergovernmental Panel on Climate Change has identified 12 categories that help to achieve lower emissions, but sadly, there is no reference to conservation through insulation. Some of the technologies are unproven as scale and require tax subsidies to make the technology viable. There is no silver bullet but remember that insulation technology not only helps curb emissions but also saves energy bills the minute it's installed. And keeps on saving every day thereafter.

**For more information, visit [insulation.org](http://insulation.org).**



## Reduce Energy Usage, Save Big Money

### Is your Mechanical Insulation 100%?

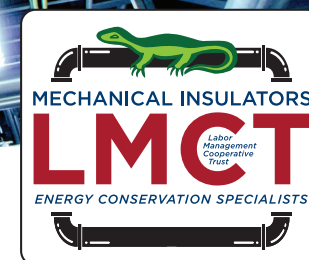
- Reduce Energy Consumption
- Save Operating Costs
- Reduce Carbon Footprint
- CUI Programs
- Mechanical Insulation Energy Audits
- ROIs – 6 months to 2 years



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