THE HISTORY OF WINDOWS

Teleprompter Presentation Script | Milestone Windows and Doors

Opening

When you look at a modern replacement window, it is easy to think that windows have always been built this way. But they haven't. The window in your home today is the result of generations of improvements in the frame, the glass, the coatings, the gas between the panes, and the way the entire unit is sealed.

Wood - the original standard

For a very long time, wood was the standard material for residential window frames. And there were good reasons for that. Wood was readily available, craftsmen could cut and shape it with basic tools, it held glass well, and wood itself is actually a fairly good natural insulator.

The problem with wood was never that it couldn't make a good window. The problem was maintenance. Wood can absorb moisture. It can swell, shrink, crack, peel, and eventually rot if it is not properly protected. Older wood windows also tended to develop gaps and air leakage as the home and the window aged.

Most of those older windows were also single pane. So you basically had one piece of glass separating the inside of your house from the weather outside.

Aluminum - strong and low maintenance

After World War II, especially through the 1950s, 60s, and 70s, aluminum windows became extremely common in American homes.

Aluminum solved several problems with wood. It was strong, lightweight, did not rot, did not need to be painted like traditional wood, and manufacturers could make relatively thin window frames with it.

But aluminum introduced another problem: aluminum conducts heat very well.

That is not what you want in a window frame. On a hot Texas afternoon, an old aluminum frame can transfer exterior heat toward the inside of the home. In cold weather, it can transfer heat in the opposite direction. That is why newer aluminum systems often use a thermal break to reduce the direct path for heat through the metal.

The move to insulated glass

At the same time, the glass itself was changing. Early homes commonly used a single pane of glass. The industry eventually moved toward insulated glass units, or IGUs: two pieces of glass separated by a sealed space.

Commercial sealed insulating glass was being developed and sold by the 1930s and 1940s, but double-pane windows became much more common in residential construction during the second half of the twentieth century.

That air space between the two panes was important because it slowed heat transfer compared with a single piece of glass. This was a major step forward in comfort and energy efficiency.

Vinyl - a major residential shift

Vinyl window technology developed in Europe in the 1950s and later became a major part of the American market. By the 1970s and 1980s, vinyl was gaining ground in the United States, and its use expanded dramatically after that.

Vinyl had some big advantages for residential windows. It does not rot. It does not need to be painted. It is much less thermally conductive than aluminum. The corners can be fusion welded, and the frame can be designed with multiple internal chambers.

That combination of low maintenance, energy efficiency, and relatively affordable manufacturing helped vinyl become one of the dominant materials in the replacement-window industry.

Low-E glass - controlling radiant energy

Then came one of the biggest advances in modern window technology: Low-E glass.

Low-E stands for low emissivity. Low-E coating technology was developed during the 1970s, and commercially important architectural Low-E products began appearing around the late 1970s and early 1980s. The coatings became much more advanced over the following decades.

A Low-E coating is an extremely thin coating applied to the glass that is designed to control infrared energy while still allowing visible light through.

That is especially important here in Texas. Instead of relying only on two pieces of glass to slow heat transfer, we can use the glass itself to help manage the sun's radiant heat.

Modern Low-E coatings can be engineered differently for different climates and performance goals. That is why two double-pane windows can look similar but perform very differently.

Argon gas - improving the space between the panes

The next improvement was what we put between those two panes of glass.

Early insulated glass units commonly used ordinary air in the sealed space. Manufacturers found that gases such as argon could improve insulating performance because argon transfers heat less readily than ordinary air in a properly designed insulated glass unit.

Argon-filled residential windows became increasingly common during the 1980s and 1990s as energy-efficient window technology advanced.

And argon is not some dangerous or exotic chemical. It is a naturally occurring, inert gas that already makes up just under one percent of the air around us.

Today's window

So if you look at the progression, it makes a lot of sense.

We went from wood frames and single-pane glass, to aluminum frames, to insulated double-pane glass, to vinyl and other thermally improved frame materials, then to Low-E coatings, argon gas, better spacer systems, better weatherstripping, and better air sealing.

Today, a good window is not just a piece of glass in a frame. It is an engineered system.

The frame controls strength, air leakage, maintenance, and heat transfer. The insulated glass unit slows heat transfer. The Low-E coating helps control radiant and solar energy. The argon improves the insulating space between the panes. And the spacer, weatherstripping, and installation all help the complete window perform the way it was designed to perform.

Close

So when somebody asks why a modern replacement window costs more than simply putting a piece of glass into an opening, this is the reason. There is more than a century of improvement built into that window.

And when you're comparing windows, don't just ask whether they're double pane. Ask what the frame is made of, what Low-E package is being used, whether the glass is argon filled, how the unit is sealed, and what the actual performance ratings are.

If you'd like more straightforward information about windows without the sales gimmicks, follow Milestone Windows and Doors. We'll keep breaking this stuff down so homeowners can understand exactly what they're buying.