

Weatherize with Silicone, Not Acrylic, and Save

A Caulking Primer: Best Practices to Follow to Maximize Energy and Cost Savings

Weatherization is on Americans' minds due to the economic crisis and the growing popularity of being more "green." And it should be: As much as 65 percent of a home's total energy bill is used to heat and cool the home—yet up to **half** of this conditioned air **leaks** out of the home.¹ Air sealing is an easy DIY task that can save money and energy, and help the environment all at the same time. It could save a homeowner up to 14 percent on home heating and cooling costs—equaling annual savings of up to \$150.⁽²⁾

The following primer offers best practices and simple steps to help homeowners learn how to achieve these sustainable energy and cost savings by sealing with silicone caulk.

Step 1: Select the Right Caulk: 100 Percent Silicone, Not Acrylic, Caulk

Whether sealing to save energy or to protect from water leakage, the choice should be a 100 percent silicone caulk like one from the **GE Silicone II*** family of products. Because silicone is permanently waterproof, flexible, and shrink-/crack-proof, it provides a long-lasting seal. Acrylic caulk can shrink and crack over time, leaving gaps for air and water to seep through. Those leaks can lead to **water damage, mold growth, and higher energy bills**—all of which can translate into lost time (when the job has to be done again), energy, and money. Leaks are never a good thing but are even more dangerous when you assume they don't exist following your sealing efforts. Make sure the caulk you use provides sustained benefits.

Key differences between silicones and acrylics that make silicones the better choice for sealing projects around the home include:

Why Silicone?

Silicone Is Permanently:

- **Waterproof:** Silicone is impervious to water, meaning water can't get through it and will never break it down. Once cured, it does not change or degrade—no shrinking, hardening, cracking, or crumbling. Even extreme temperatures, which often cause acrylic caulk to lose **flexibility and degrade** over time leaving gaps for water to pass, do not affect silicone.

- **Flexible:** Silicone stretches and compresses with joint movement as a house moves and settles. It remains permanently flexible and does not harden over time, which causes acrylic caulk to break—again, leaving cracks and gaps for air and water to pass.
- **Shrink-proof:** Silicone continues to fill the gap or crack as when first applied, helping prevent cracks from re-forming.
- **Crack-proof:** Silicone remains unaffected by extreme heat and the sun, which causes acrylic caulk to crack over time.

Why Not Acrylic?

Acrylic caulk can shrink and crack, leaving gaps for air and water to seep through. Leaks are never a good thing but are even more dangerous when you assume they don't exist following your sealing efforts.

- Acrylic breaks down in water over time.
- Acrylic becomes less flexible and can even freeze at low temperatures, making it more likely to crack.
- Acrylic shrinks as the caulk dries. This shrinking may cause cracks over time.
- Acrylic hardens, cracks, and crumbles over time when exposed to extreme heat and the sun's UV rays.

Step 2: Do It Yourself: Getting Started with Caulk

What and Where to Caulk

- Caulk is used to seal the gaps and cracks that exist between two adjoining materials—places where air and/or water could seep through (e.g., window and door frames, between a sink and countertop, etc.).
- Most people remember to seal leaks in their windows and doors but forget to inspect attics, basements, and crawl spaces. Leaks in these areas can sometimes be bigger problems than leaks in windows and doors.
- Caulk is not an adhesive, and therefore should not be used to bond materials together, such as tiles to a wall or floor.

Prep Work/Tool Assembly

- Never caulk over old caulk. Use a razor blade first to remove the old caulk. By removing the old caulk you can also strip off any mold or mildew that may have formed.
- Start with a clean surface. Use a household cleaner, rubbing alcohol, or a wire brush, and wipe with a clean cloth. Make sure the surface is clean, dry, and free of soap, grease, dirt, and dust before caulking.

- For a straight edge, use masking tape or painter's tape on each side of the joint. Be sure to remove it immediately after application to help achieve a neat and even bead of caulk.

Prepare the caulk/gun:

- You cannot squeeze a cartridge of caulk by hand. You'll need a caulk gun to properly dispense it. Or for smaller jobs, you can try GE Caulk Singles, which don't require a caulk gun.
- A professional-looking bead of caulk starts with the right cut. Be careful to cut the opening of the caulk tube/cartridge to fit the job at hand (e.g., cut near the top for a thin bead and further down for a thick bead).
- For silicone caulk, there is an inner seal that needs to be pierced before you begin. A stiff wire or similar object can be used to break the seal. (Many caulk guns have such a sharp object attached to the gun.)

Step 3: Get Caulking!

How Much Caulk?

- Approximately four tubes of high-quality caulk and weather stripping can seal the gaps and cracks in a typical home.
- If the space you are sealing is too big (exceeds 1/2" x 1/2"), it's not a matter of adding more caulk. You'll need a backer rod, which is an extruded foam rod that is typically placed in deep joints to fill in some of the space before the caulk is applied.

Easy Does It Makes for a Neat and Even Bead

- With each squeeze of the caulk gun, the line of caulk that is formed is called a bead.
- Hold the caulk gun at a 45-degree angle. How smooth the caulk dispenses depends on the evenness of pressure while squeezing the gun. Avoid "globbs" by maintaining an even hand from start to finish.

Tooling Ensures a Tight Seal

- "Tooling" or smoothing the bead is an essential step of caulking. Your finger is often the best tool (although you can also buy a smoothing tool if desired).
- Run a finger to smooth the bead to ensure that it's neat and even, and most importantly, that it fills the gap to form a tight seal.

Dry Time and Cleanup

- Some caulk requires up to 24 hours or longer before it can be exposed to water or the caulk (and your hard work) will wash away. **GE Silicone II Window & Door** and **GE Silicone II Kitchen & Bath** caulk develops strength and adhesion quickly so it can be exposed to water in as few as three hours. For homeowners trying to squeeze home maintenance projects into the weekend, GE Silicone II can decrease the waiting time, helping increase convenience, speed, and efficiency.
- Use mineral spirits for proper cleanup of silicone caulk.

For tips on how to caulk and save and additional home sealing information, visit www.caulkandsave.com or email mgray@graycreate.com.

* Trademark of Momentive Performance Materials Inc. GE is a Registered Trademark of General Electric Company.

¹Energy Information Administration: 2005 Residential Energy Consumption Survey Tables SH5, US5 and AC4

“Residential Ventilation and Energy Characteristics” by Max Sherman and Nance Matson, Energy Performance of Buildings group—Energy and Environment Division at Lawrence Berkeley Laboratory—Supported by the Assistant Secretary for Energy Efficiency and Renewable Energy

² Assumes: 1) 50 percent of total energy is associated with heating/cooling; 2) 1/3 (33 percent) of heating/cooling costs is associated with all ventilation (includes needed ventilation and excess air infiltration); 3). A homeowner can reduce this ventilation reducing the ventilation energy costs by 30 percent (5 percent savings)—45 percent (8 percent savings); and 4) Average U.S. Home Energy Expenditure (2005 RECS study) for Single Family Detached and Attached Homes is \$2,091.