



## DIY Home Assessment Checklist

Use the following checklist to identify air leaks, drafts, and other areas in your home in need of attention. Once you have completed the assessment, you can begin thinking about retrofit priorities, timeline, and budget.

**\*1: How to:** Using a stick of lit incense in your hand, hover it along the border of each window and along the baseboards of exterior walls. Watch for air blowing against the rising smoke. To detect large gaps, you can shine a flashlight over all potential gaps at night while a partner observes the house from the outside.

For Windows only: remove any dried or cracked caulk on the outside by scraping it out and apply fresh paintable acrylic latex and ass new weatherstripping on the inside.

For best results, review the attached guide to determine the most appropriate caulk to seal air leaks. The online guide can also be found at [www.energy.gov/energysaver/caulking](http://www.energy.gov/energysaver/caulking)

**\*2: Insulation Type:** If your attic insulation type is vermiculite, leave it undisturbed until it is tested for asbestos as it can release toxic fibers into your home. In Montana, an R-value of 49 is recommended. This guide provides more information on insulation choices.

**\*3: Reviewing Past Utility Bills:** The best practice when reviewing and analyzing your energy utility bill is to collect and compare a full calendar year of bills. Review usage over the full year to determine peak times of usage, such as winter. Make a note of the billing period and cost per unit of energy used. It is best to also make a note of the measurement, such as kWh. Use the information listed on your appliances to compare their average annual uses to your home's overall energy usage. This will help you identify what appliances in your home are the least efficient and could be replaced with more efficient models.

**\*4 Lighting:** If replacing lightbulbs in your home consider choosing an LED option as they are the most efficient and long-lasting.

<p><b>AIR LEAKS</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> All exterior windows for drafts*1</li> <li><input type="checkbox"/> All exterior doors for drafts</li> <li><input type="checkbox"/> Attic &amp; crawlspace hatch</li> <li><input type="checkbox"/> Garage door frame</li> <li><input type="checkbox"/> All switch plates &amp; outlets</li> <li><input type="checkbox"/> Electrical &amp; gas service entrances</li> <li><input type="checkbox"/> Fireplace dampers</li> <li><input type="checkbox"/> Cable TV &amp; phone lines on exterior walls</li> <li><input type="checkbox"/> Where dryer vents pass through exterior walls</li> <li><input type="checkbox"/> Wall or window-mounted air conditioners</li> <li><input type="checkbox"/> Vents &amp; fans</li> <li><input type="checkbox"/> Baseboards</li> </ul>
<p><b>VENTILATION</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Check if attic vents are blocked by insulation</li> <li><input type="checkbox"/> Confirm if bathroom exhaust fan is working properly</li> <li><input type="checkbox"/> Confirm if kitchen exhaust fan is working properly</li> <li><input type="checkbox"/> Confirm if exhaust fans vent outside</li> </ul>
<p><b>INSULATION</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Check attic &amp; crawlspace for adequate insulation</li> <li><input type="checkbox"/> Check exterior walls for insulation</li> <li><input type="checkbox"/> Make note of the type* &amp; condition of insulation</li> <li><input type="checkbox"/> Review R-value of insulation</li> </ul>
<p><b>HEATING &amp; COOLING</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Check attic &amp; crawlspace for adequate insulation</li> <li><input type="checkbox"/> Check exterior walls for insulation</li> <li><input type="checkbox"/> Make note of the type*2 &amp; condition of insulation</li> <li><input type="checkbox"/> Review R-value of insulation</li> </ul>
<p><b>LIGHTING</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Inspect the type of all lightbulbs*4</li> <li><input type="checkbox"/> Further inspect light fixtures to detect air leaks (refer to *1 note)</li> </ul>
<p><b>APPLIANCES &amp; ELECTRONICS</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Review refrigerator</li> <li><input type="checkbox"/> Review clothes washer &amp; dryer</li> <li><input type="checkbox"/> Review dishwasher</li> <li><input type="checkbox"/> Review chest freezer</li> <li><input type="checkbox"/> Review water heater</li> <li><input type="checkbox"/> Check water heater insulation</li> </ul>
<p><b>UTILITY BILLS</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Review &amp; analyze one full year of usage*3</li> </ul>




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# Caulking

Caulk is a flexible material used to seal air leaks through cracks, gaps, or joints less than 1-quarter-inch wide between stationary building components and materials. For components that move -- [doors](#) and [operable windows](#), for example -- [weatherstripping](#) is the appropriate material.

Before caulking air leaks in an existing home, you will need to [detect the leaks](#) and [assess your ventilation needs](#) to ensure adequate indoor air quality. In addition to sealing air leaks, caulking can also prevent water damage inside and outside of the home when applied around faucets, ceiling fixtures, water pipes, drains, bathtubs, and other plumbing fixtures.



 *Applying caulk to a window frame to prevent air leakage. This caulk is white when applied, and dries clear. | Photo courtesy of @iStockphoto.com/BanksPhotos.*

## Selecting Caulking

Most caulking compounds come in disposable cartridges that fit in half-barrel caulking guns (if possible, purchase one with an automatic release). Some pressurized cartridges do not require caulking guns.

When deciding how much caulking to purchase, consider that you'll probably need a half-cartridge per window or door and four cartridges for the foundation sill of an average home. Caulking compounds can also be found in aerosol cans, squeeze tubes, and ropes for small jobs or special applications.

Caulking compounds vary in strength, properties, and prices. Water-based caulk can be cleaned with water, while solvent-based compounds require a solvent for cleanup. See the table below for information about common caulking compounds.

### Common Caulking Compounds

Caulking Compound	Recommended Uses	Cleanup	Shrinkage	Adhesion	Cost	Comments
Silicone: Household	Seals joints between bath and kitchen fixtures and tile. Forms adhesive for tiles and metal fixtures. Seals metal joints, such as those in plumbing and gutters.	Dry cloth if immediate; mineral spirits or naphtha.	Little or none.	Good to excellent.	High	Flexible: cured silicone allows stretch of joints up to three times normal width or compression to one-half the width.
Silicone: Construction	Seals most dissimilar building materials such as wood and stone, metal flashing, and brick.	Dry cloth if immediate; mineral spirits or naphtha.	Little or none.	Good to excellent.	High	Permits joints to stretch or compress. Silicones will stick to painted surfaces, but paint will not adhere to most cured silicones.
Polyurethane, expandable spray foam	Expands when curing; good for larger cracks indoors or outdoors. Use in nonfriction areas, as material can become dry and powdery over time.	Solvent such as lacquer thinner, if immediate.	None; expands quite a bit.	Good to excellent.	Moderate to high.	Spray foam quickly expands to fit larger, irregular gaps. Flexible. Can be applied at variable temperatures. Must be painted for exterior use to protect from

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						ultraviolet radiation. Manufacturing process produces greenhouse gases.
Water-based foam sealant	Around window and door frames in new construction; smaller cracks.	Water.	None; expands only 25%.	Good to excellent.	High	Takes 24 hours to cure. Cures to soft consistency. Water-based foam production does not produce greenhouse gases. Will not over-expand to bend windows (new construction). Must be exposed to air to dry. Not useful for larger gaps, as curing becomes difficult.
Butyl rubber	Seals most dissimilar materials (glass, metal, plastic, wood, and concrete.) Seals around windows and flashing, bonds loose shingles.	Mineral spirits or naphtha.	From 5% to 30%.	Good.	Moderate to high.	Durable 10 or more years; resilient, not brittle. Can be painted after one week curing. Variable shrinkage; may require two applications. Does not

Caulking Compound	Recommended Uses	Cleanup	Shrinkage	Adhesion	Cost	Comments
						adhere well to painted surfaces. Toxic; follow label precautions.
Latex	Seals joints around tub and shower. Fills cracks in tile, plaster, glass, and plastic; fills nail holes.	Water	From 5% to 10%.	From good to excellent.	Moderate.	Easy to use. Seams can be trimmed or smoothed with moist finger or tool. Water resistant when dry. Can be sanded and painted. Less elastic than above materials. Varied durability, 2–10 years. Will not adhere to metal. Little flexibility once cured. Needs to be painted when used on exteriors.
Oil or resin-based	Seals exterior seams and joints on building materials.	Mineral spirits or naphtha.	From 10% to 20%.	Good.	Low.	Readily available. Least expensive of the four types. Rope and tube form

Caulking Compound	Recommended Uses	Cleanup	Shrinkage	Adhesion	Cost	Comments
						available. Oils dry out and cause material to harden and fall out. Low durability, 1–4 years. Poor adhesion to porous surfaces like masonry. Should be painted. Can be toxic (check label). Limited temperature range.

## Applying Caulk

Although not a high-tech operation, caulking can be tricky. Read and follow the instructions on the compound cartridge, and remember these tips:

- For good adhesion, clean all areas to be caulked. Remove any old caulk and paint, using a putty knife, large screwdriver, stiff brush, or special solvent. Make sure the area is dry so you don't seal in moisture.
- Apply caulk to all joints in a window frame and the joint between the frame and the wall.
- Hold the gun at a consistent angle. Forty-five degrees is best for getting deep into the crack. You know you've got the right angle when the caulk is immediately forced into the crack as it comes out of the tube.
- Caulk in one straight continuous stream, if possible. Avoid stops and starts.
- Send caulk to the bottom of an opening to avoid bubbles.
- Make sure the caulk sticks to both sides of a crack or seam.
- Release the trigger before pulling the gun away to avoid applying too much caulking compound. A caulking gun with an automatic release makes this much easier.
- If caulk oozes out of a crack, use a putty knife to push it back in.



- Don't skimp. If the caulk shrinks, reapply it to form a smooth bead that will seal the crack completely.

The best time to apply caulk is during dry weather when the outdoor temperature is above 45°F (7.2°C). Low humidity is important during application to prevent cracks from swelling with moisture. Warm temperatures are also necessary so the caulk will set properly and adhere to the surfaces.

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