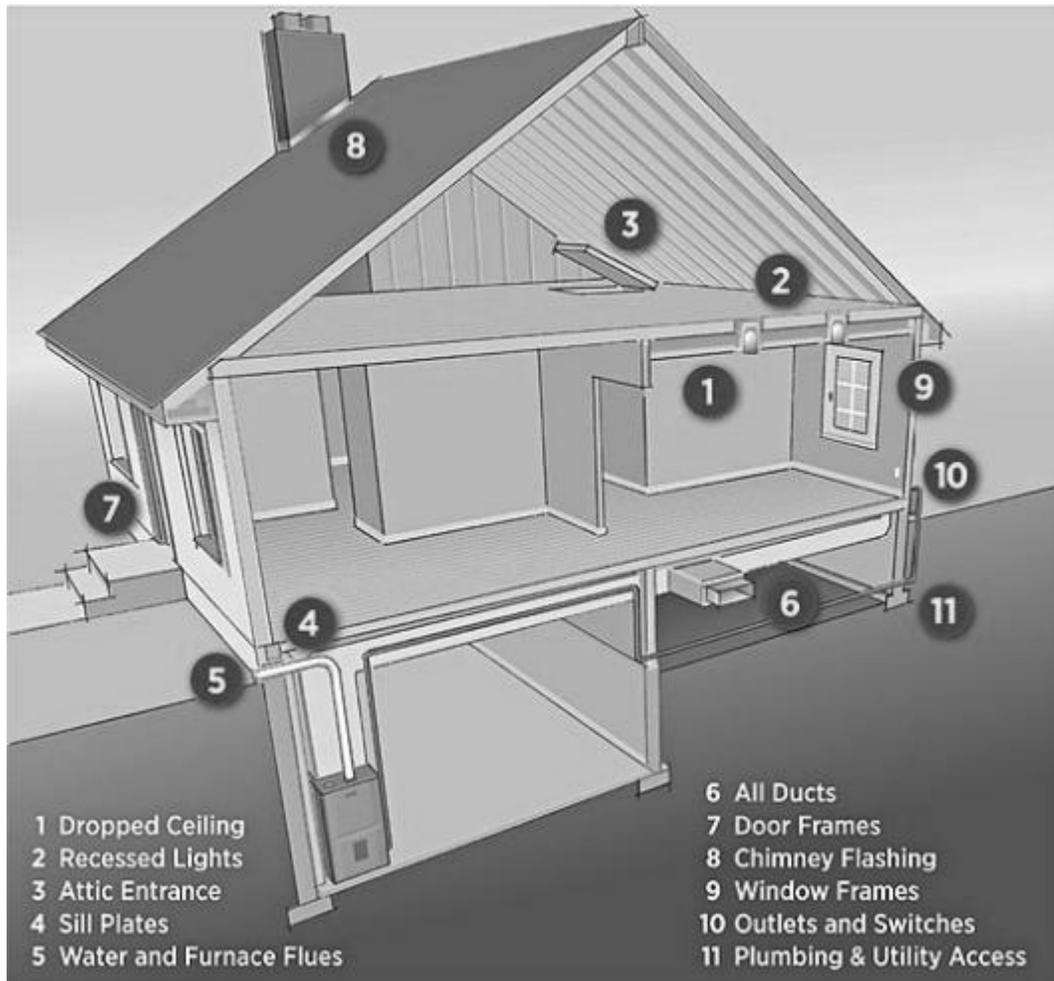


## Do-It-Yourself – weatherization for your house

### Preventing heat loss



**Northside Association for Community Development  
Tuesday October 30, 2012**

# LOSING HEAT – AIR INFILTRATION AND CONVECTION:

## AIR INFILTRATION - AIR WANTS TO COME INSIDE

In winter COLD air wants to get inside through any gaps – find them and block them

### FIND LEAKS - VISUAL INSPECTION

OUTSIDE - inspect all areas where two different building materials meet, including:

- All exterior corners
- Outdoor water faucets
- Where siding and chimneys meet
- Areas where the foundation and the bottom of exterior brick or siding meet.

INSIDE - inspect around the following areas for any cracks and gaps that could cause air leaks:

- Electrical outlets
- Switch plates
- Door and window frames
- Electrical and gas service entrances
- Baseboards
- Weather stripping around doors
- Fireplace dampers
- Attic hatches
- Wall- or window-mounted air conditioners.
- Cable TV and phone lines
- Where dryer vents pass through walls
- Vents and fans.

Also look for gaps around pipes and wires, foundation seals, and mail slots. Check to see if the caulking and weather stripping are applied properly, leaving no gaps or cracks, and are in good condition. Check the exterior caulking around doors and windows, and see whether exterior storm doors and primary doors seal tightly.

Inspect windows and doors for air leaks. See if you can rattle them, since movement means possible air leaks. If you can see daylight around a door or window frame, then the door or window leaks. You can usually seal these leaks by **caulking** or **weatherstripping** them. Check the storm windows to see if they fit and are not broken.

Other air-leak detection methods include the following:

- Shine a flashlight at night over all potential gaps while a partner observes the house from outside. Large cracks will show up as rays of light. Not a good way to detect small cracks.
- Shutting a door or window on a piece of paper. If you can pull the paper out without tearing it, you're losing energy.

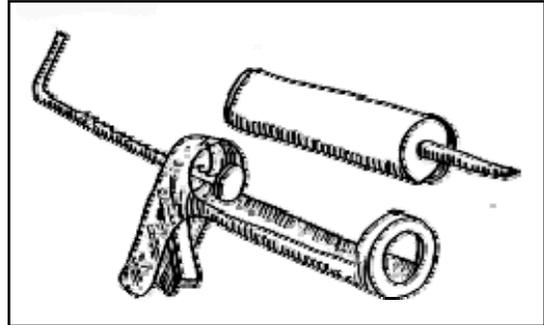
## NOW BLOCK THEM - Leak Sealing Materials

Most leak sealing techniques can be completed in a few hours with just a few tools and a variety of common materials that can be found at most hardware stores, lumber yards, or large department stores. Use quality materials to insure durable and effective leak seals.

**CAULK** is used to fill small cracks and holes. A caulk gun dispenses the caulk. Pure silicone caulk is necessary around areas subject to high heat (lights, vents, or chimneys). Siliconized latex or acrylic caulk can be used in other areas.

Here's a quick guide to selecting the right caulk for your caulk jobs:

1. **ACRYLIC LATEX** - for wood siding, around doors and windows. Easy to apply, cures fast, paintable, comes in colors, water clean-up, good for interior use, low odor and useable on exterior.
2. **SILICONE** - for metal, glass, tile, smooth and non-porous surfaces. Good flexibility, low shrinkage, can be applied at most temperatures, joins many dissimilar materials and cures fast.
3. **BUTYL RUBBER** - for concrete, block and brick, gutters, aluminum siding, flashing and chimneys. Can be used in high-moisture areas and below the soil level. Paintable and comes in colors. Can be applied in below-freezing temperatures.
4. **SILICONIZED ACRYLIC** - for wood siding, masonry, metal, glass and tile. Excellent adhesion and flexibility, weather-resistant, easy to apply, water clean-up, paintable and comes in colors and clear.

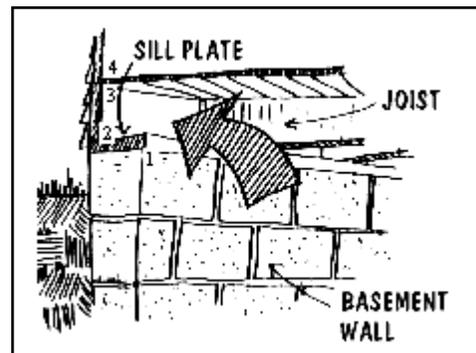


**FOAM SEALANT (GREAT STUFF)** can be used to fill larger holes and gaps. It is normally sold in pressurized cans. Since it sticks well to most surfaces - including your hands - be sure to use the plastic gloves provided in the box! Do not use foam sealants that contain CFCs. (CFCs - chlorofluorocarbons - are a major contributor to ozone depletion.) Around windows and door frames be sure to use **NON-EXPANDING** foam – so **NOT GREAT STUFF** – read the can. The foam can expand enough in the space to make it hard to operate doors and windows.

**BASEMENTS** - Many of the air leaks in a basement can be found around the rim joist area in the space between the top of the foundation and the floor above. Some cracks can also be spotted when it's light outside and darker in the basement. Check around basement windows, plumbing penetrations, gas lines, and dryer vents. Make sure the outside flapper on your dryer vent closes and is not obstructed with lint. If you have basement moisture problems, be sure to take care of them before sealing leaks.

1. Clean and caulk wherever air penetrates.
2. Around the rim joist caulk the joint where the wood sill plate meets the foundation wall
  - (1) - the top and bottom edges of the rim joist (2 and 3), and the edge of the floor baseboard (4).
  - Butyl rubber or pure silicone caulk provide good elasticity, adhesion, and durability in these spots.
  - Expanding foam can be used for larger cracks.

After sealing, cut fiberglass insulation to fit and put it in place in this space.

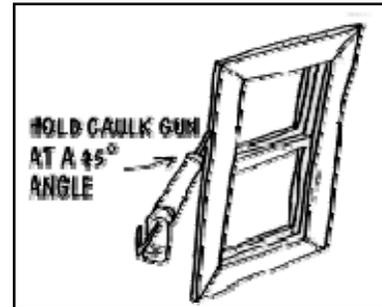


## **HOW TO BLOCK AIR**

### **LEAK SEALING TECHNIQUES**

#### Windows

1. CLOSE the storm windows
2. LOCK the window – the lock pulls the two sashes tightly together and minimizes air infiltration
3. SEAL gaps – there are two ways – TEMPORARY (removable in the spring) and permanent (will keep working even when you open the windows again in the spring)

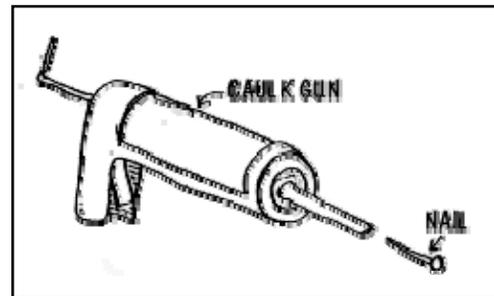


### **PERMANENT WINDOW SEALING**

**INSIDE:** Seal the gap between the wall and the window trim.

Tools – caulk gun and appropriate caulk

1. For indoor caulking, a clear acrylic or siliconized latex caulk are recommended. These are durable and easily painted.
2. The surface should be clean and dry.
3. First insert the tube in the caulk gun and cut the tip off the tube with a sharp knife. Varying the depth and angle of the cut will affect the size of the caulk "bead"
4. Pierce the plastic seal in the tube by inserting a long nail or coat hanger into the tip opening.
5. Apply the caulk "bead" in a continuous motion, pushing the bead into the crack by holding the caulk gun at a 45o angle to the work surface.
6. Release the handle before reaching the end of the crack to reduce bead "run-on" and reduce waste.
7. Run a sponge-moistened finger over the caulk to provide a smooth surface. Keep plenty of rags on hand to deal with drips and clean up. Place the nail you used to pierce the tube back into the opening to prevent the caulk from drying.



**OUTSIDE** – Same approach – seal around the outer frame of the window casing.

**INSIDE** – stop air infiltration around the window sashes.

**SPRING-BRONZE WEATHER STRIPPING** goes in the sash channels (The tracks the sash slides up and down inside) and holds the sash in place, blocking air infiltration **\*DEMONSTRATION\***

TOOLS: hammer, tin or metal cutting snips or heavy duty scissors

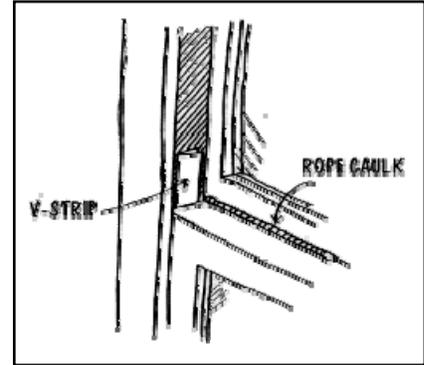
1. If your upper sash is painted shut there is no air infiltration so you do not need weather stripping.
2. Open the lower sash as high as possible
3. Measure the opening from the sill to the bottom of the open sash – add at least 3" to that measurement
4. Cut a piece of spring bronze to that measure
5. Place in the sash track with the punched holes near the inside of the window.
6. Slide the upper end between the opened sash and the sash track
7. Nail in place – start with one at the bottom – next another half way up and then near the top. Fill in all the nails.
8. Can also be placed on the sill to block air infiltration.
9. Close the storm window, if you have one.
10. LOCK the window – the lock pulls the two sashes tightly together and minimizes air infiltration.

## TEMPORARY WINDOW SEALING

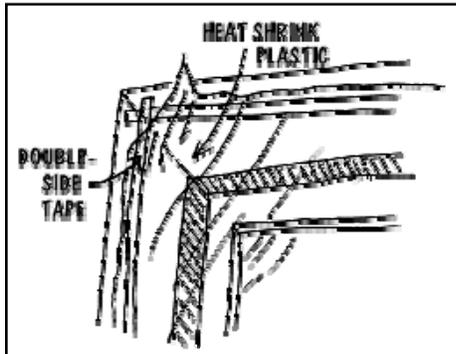
**CLEAR TEMPORARY CAULK** – comes in a caulk tube applied with a caulk gun – this clear caulk is easy to apply to any gaps round the windows and can be easily removed in the spring.

**ROPE CAULK** – a clay like putty that comes in a thin roll – used to seal cracks around the window frame and between the upper and lower sashes by the sash lock. **CLOSE** the storm windows

1. Close the storm window, if you have one.
2. **LOCK** the window – the lock pulls the two sashes tightly together and minimizes air infiltration
3. Apply the caulk, pushing it into any cracks with your finger for **rope caulk**.
4. For **clear caulk** fill the cracks as you go – overlapping a little onto the inside surface of the window is OK.
5. If your upper sash is painted shut there is no air infiltration there.
6. Do not caulk "weep" holes in storm windows. These tiny holes, usually at the bottom of the storm, prevent moisture damage by allowing moisture to escape.
7. Removes easily in the spring



**WINDOW PLASTIC** is applied to the inside of a window frame – almost like an interior storm window reduce air leakage. It also adds an insulating layer to your window.



<<< **HEAT-SHRINK PLASTIC** is sealed on the window edges with double-sided tape. It can be "heat-shrunk" using a blow-dryer for a wrinkle free finish, but don't overshrink the plastic or you will pull off the tape.

**TOOLS:** scissors and hair dryer

1. Make sure your window trim is clean and dry.
2. First attach a continuous strip of tape around the inside edge of the trim.
3. Pull off the strip over the top of the double sided tape.
4. Cut the plastic larger than the opening – you can trim it later.
5. Start at the top and stick the plastic to the tape
6. Turn on the hair dryer to the level recommended on the package and blow on the plastic in a constant sweeping motion over part of the window.
7. Move on to the next section

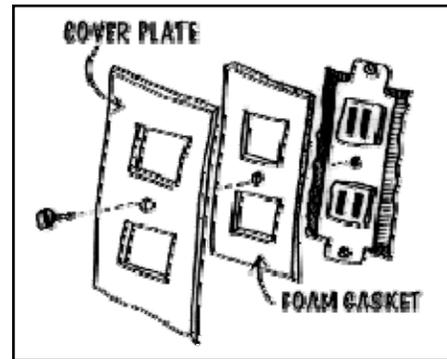
## DOORS

Caulking the inner walls and the outer walls around an exterior door is the same as windows and the spring bronze works very well in a door also. On a door the spring bronze should be installed with the nailing strip on the inside of the door jamb.

A "door sweep" is used to seal against the door threshold. Measure the bottom of the door to determine the length of the sweep. Cut equal amounts off each end of the sweep, using a hacksaw for metal sweeps or scissors for vinyl sweeps. Make sure that the door sweep overlaps the threshold without interfering with the operation of the door. Attach the sweep to the bottom of the door with the screws provided. With vinyl sweeps, remove the protective plastic from the self-adhesive backing and stick the sweep to the door.

## **WALLS**

Foam gaskets are used to seal switches and outlets which are not paint-sealed to the wall. Use a screwdriver to remove the screws holding the cover to the wall. Put the screwdriver down while you install the gaskets. Air leaks through interior walls, flowing up into the attic, as well as through exterior walls. So install the gaskets on all your walls. Plastic safety plugs are available to stop air leaks through unused electrical outlets.



## **FURNACE DUCTS**

Tools: Flashlight, scissors, utility knife, staple gun, aluminum foil tape (NOT DUCK TAPE!!!!!!!!!!)

### **SEAL GAPS**

1 - Search for ductwork in unconditioned spaces--that is, any space not heated or cooled. Such spaces include unconditioned attics and basements, crawl spaces, garages and porches. Use a flashlight to get a good look at the ductwork so you can identify gaps or holes.

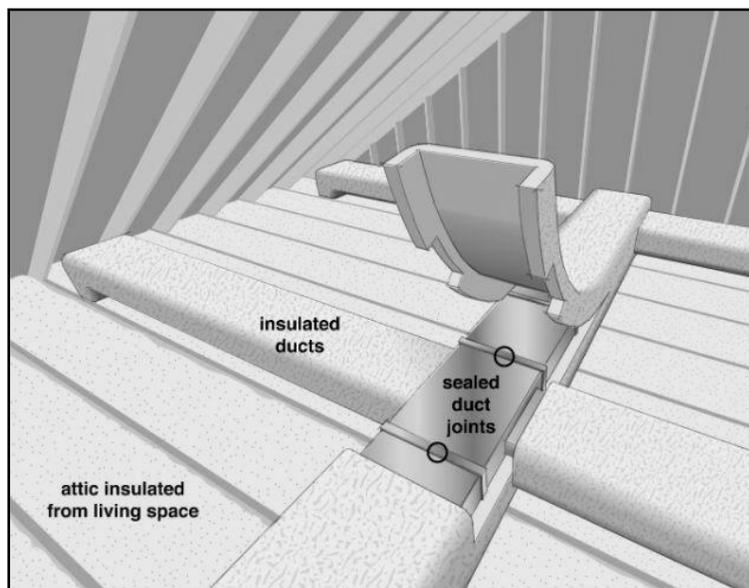
2 - Seal all joints, rivets, cracks or tears with aluminum foil tape. Do not use cloth duct tape; despite its name, it's not a good choice for sealing ducts because the adhesive dries out too quickly.

**ADD INSULATION** - Keep the heat in the duct instead of heating the basement

3 - Measure the surface area of your exposed ductwork, using a measuring tape.

4 - Cut pieces of duct insulation to fit your exposed ductwork and attach the pieces to the ducts or the joints. Use a sharp utility knife and a straight edge to make the cuts. The fiberglass batt goes against the duct, and the shiny aluminum foil faces out. This job goes much more quickly if you're using self-adhesive insulation.

5 - Seal all joints between pieces of insulation with aluminum foil tape.





### Air Sealing Trouble Spots

- 1 Air Barrier and Thermal Barrier Alignment
- 2 Attic Air Sealing
- 3 Attic Kneewalls
- 4 Shaft for Piping or Ducts
- 5 Dropped Ceiling/Soffit
- 6 Staircase Framing at Exterior Wall
- 7 Porch Roof
- 8 Flue or Chimney Shaft
- 9 Attic Access
- 10 Recessed Lighting
- 11 Ducts
- 12 Whole-House Fan
- 13 Exterior Wall Penetrations
- 14 Fireplace Wall
- 15 Garage/Living Space Walls
- 16 Cantilevered Floor
- 17 Rim Joists, Sill Plate, Foundation, Floor
- 18 Windows & Doors
- 19 Common Walls Between Attached Dwelling Units

# WINDOWS

## Saving energy – using what you have:

1. **STORM WINDOWS** - If you have storm windows, be sure they are closed for the winter.
2. **BLINDS AND CURTAINS** - Energy is lost when warm air touches the cool glass – the heat transfers and transforms into cooler air. The easiest way to avoid losing heat is blinds and curtains protecting the glass.
  - a. Close the blinds and curtains at night when it is the coldest outside.
  - b. Close them on the north side of the house or on any side where the sun is not shining.
  - c. Open the blinds and curtains on sunny days to let the sun warm the house.
3. **WINDOW LOCKS** - Lock the window – this pulls the two parts of the window tightly together and helps cut down on drafts.



## Adding things to cut down on drafts:

- A) Add caulk or fill gaps around the outside of the window frame.
- B) Add caulk or fill gaps around the **INSIDE** of the window frame. Pay special attention to where the plaster wall meets the wooden window frame.
- C) Add removable caulk – this is a clear caulk that you apply over all the air gaps around the window. It can be easily removed in the spring.  
Seasonseal – available at: Menards, Lowes, True Value
- D) Add bronze spring weather stripping in the sash channels. Cost should be less than \$5/window  
Comfort Seal (WJ Dennis Co) – available at: Menards, Lowes, True Value
- E) Add clear plastic over the interior of the window – shrink to fit style.  
Many brand names – available at: Meijers, True Value, Lowes, Menards, etc

## Other things you can do to save energy:

- ❖ Install a programmable thermostat to reduce the temperature in the house at night or when no one is home.
- ❖ Add insulation above the basement walls between the floor joists.

## FACTS:

- You will get more energy savings by adding 4” of insulation to your attic floor than you will save by replacing all your windows.
- An original wooden window in good repair, with weather stripping AND a storm window is as energy efficient as a brand new double glass window.

## INSPECTION of your windows:

- Are the upper sash of the window painted shut on the inside? If they are, then there are no drafts coming in around the window, you may be losing heat through the glass.
  - Item 2 – blinds and curtains will help keep heat inside
- Is the sash loose in the track? Does it clatter or make noise? You may need new window putty if it is deteriorating – that will be a job for next spring.
  - Items C or D on the opposite side will help. (Rope caulk & bronze weather stripping)
- Look around the outer frame of the window on the **OUTSIDE** of the house – are there gaps between the wooden frame and the siding?
  - Fill with paintable caulk – Item A
- Look around the outer frame of the window on the **inside** of the house – are there gaps between the wooden frame and the plaster?
  - Fill with paintable caulk – Item B



This is the label for the bronze weather stripping. There may be other name brands like Weather King.