Dryer Vent Cleaning

Statistics vary between reports, but on the whole there is no argument that ***clothes dryer ventilation issues are a major cause of house fires in the United States.***

Clothes dryers are also one of the heaviest energy consumers in any home. Efficiency (drying time) depends largely on ventilation characteristics. Ventilation problems cause the dryer to run longer, which costs the homeowner more money.

These concerns make the dryer vent one of the more important homeowner inspection and maintenance tasks. Whether the dryer uses gas or electric heat, ventilation is equally important.

Dryer vent ducting involves two items of concern: 1) the vent hose and 2) the vent pipe to the exterior of the house.

Dryer Vent Cleaning

The ideal dryer vent is short, straight and smooth:

•The longer the vent duct, the more air flow is restricted.

•Ductwork bends and the sharpness of the bends also restrict air flow.

•Rough interior walls of vent hoses and pipes tend to catch lint and disrupt smooth air flow.

•Sheet metal screws or similar items projecting into ductwork snag lint and encourage buildup.

These characteristics obviously affect air flow, which directly impacts drying time (efficiency,$). Less obvious is the relationship between dryer vent ducting and fire hazard.

Combustion requires three things: ***fuel, oxygen and ignition***. Under the right conditions, a typical clothes dryer provides all three elements.

Lint is highly flammable, so we have ***fuel***. The more lint, the greater the fire potential. Lint is a natural byproduct of laundry, so we can't eliminate it; we can only deal with it.

There is sufficient ***oxygen*** in our atmosphere to sustain combustion. The dryer has a blower which pulls significant volumes of air through the heater, then pushes past the clothing and out the vent. Normal dryer air flow thus supplies plenty of oxygen to promote vigorous combustion, like a bellows is used to make a forge hot.

Dryer Vent Cleaning

The air passing through the heater comes from around the dryer, usually pulled in the back or bottom of the appliance. There is often lint in this intake area due to imperfect vent hose sealing and because this area is cleaned infrequently.

Lastly we have a potential ignition source. In the case of gas dryers, this is a very hot flame. Electric dryers have glowing hot wires.

Under normal conditions there is physical separation from the heat source and any downstream lint. But stray bits of lint may be caught in the air stream passing through the heater.

These can burn, carrying an ***ignition*** source out the vent to any collection of lint trapped in the ductwork.

This combustion scenario is not only possible, but occurs far too frequently. Dryer vent fires occur thousands of times annually in the US, resulting in property damage, injuries and deaths. The severity of the damage depends mainly on the amount of lint buildup and its location.

Another damage factor is vent hose type. The white plastic hoses are themselves highly flammable, so when fire breaks out inside them, they make the situation worse. These should never be used and are against building codes in North America.

Foil-type hoses also have some combustible content and should similarly be avoided. Many dryer manufacturers recommend against them as well.

Overall, lint is the real issue with dryer vent fires and often for airflow restriction.

Dryer Vent Cleaning

Here is an extreme example of lint buildup in a dryer vent pipe. This huge mass of lint--perhaps 20 years worth--was removed when cleaning the 4in vent, which was completely blocked off so that clothes would not dry.

The same dryer had a foil vent hose which had been crushed against the wall. A mass of lint was trapped in the hose as well because of the sharp kink. These highly flexible hoses are easily crushed and torn.

Dryer Vent Cleaning

Two things will minimize the potential for dryer vent fires: 1) vent duct cleaning and 2) vent hose selection and installation.

Cleaning includes the rigid 4in vent pipe as well as the vent hose. If replacing a high-flex hose with a more appropriate design, simply discard the old hose and install the new one which will already be clean.

If your vent pipe is relatively short (10ft or less), cleaning can be accomplished with an inexpensive flexible brush, available at many home improvement or hardware stores, or at appliance specialty shops. You simply push it back and forth throughout the length of the pipe while twisting to loosen the lint and then pull or push it out one end or the other. Multiple passes along the entire length are recommended for thorough cleaning.

If re-using the dryer vent hose connecting to the pipe, you should also clean out the hose using the same technique.

A shop vacuum cleaner is also very handy to suck up the lint in the process of cleaning both pipe and hose.

Wear a dust mask when cleaning dryer vent ductwork. Breathing dust and lint is unavoidable in this process. It may not be hazardous, but it certainly irritates your respiratory system.

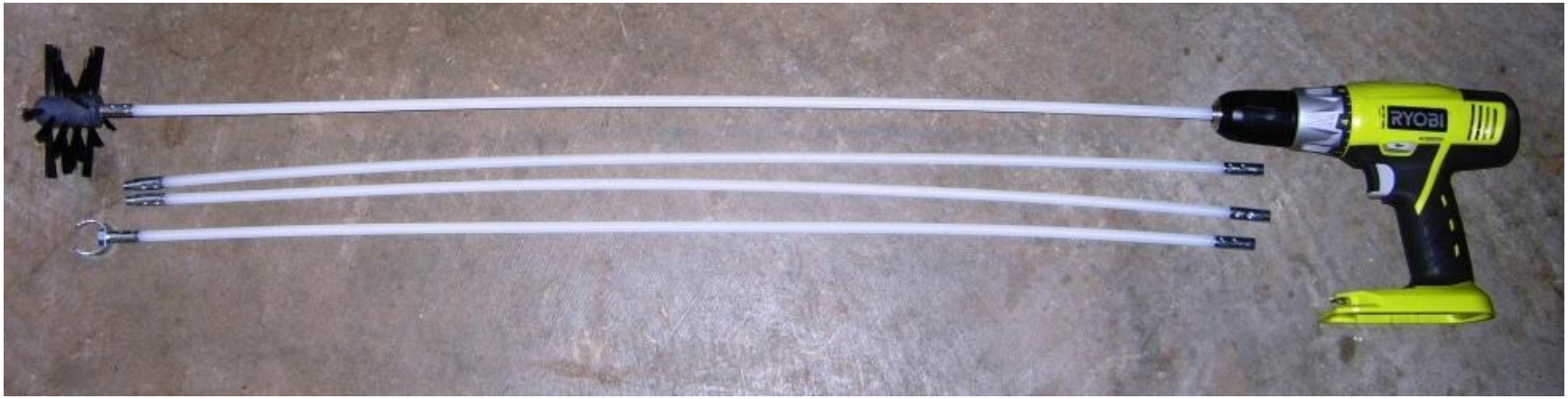
Dryer Vent Cleaning

For longer vent pipes, special rotary cleaning tools are available. These are useful even for short ducts because of superior cleaning and extra features.

These duct cleaning systems involve flexible 3ft-long rods which screw end-to-end to achieve a desired length. With a brush on one end and a power drill on the other, a long, twisted duct can be cleaned easily. These kits typically include a shop vacuum attachment so that all lint and debris can be collected as it is pushed towards the vac.

One such kit is the LintEater® rotary dryer vent cleaning system. It includes four rods to clean up to 12 feet and extension kits can be purchased for longer runs. These kits are not as cheap as a 10ft brush, but work better and still cost less than the price of a professional service call.

The LintEater® system comes with a well-written manual and instructional DVD to guide the user through the cleaning process with different vent configurations. It also includes some very handy accessories. Highly recommended!

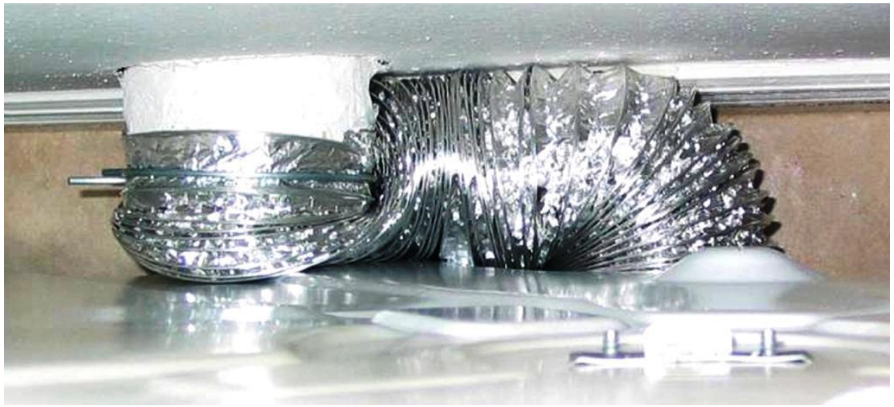


Dryer Vent Cleaning

It is critical to have a clean vent hose between the dryer outlet and a clean vent pipe. It is also important to have a clear vent hose to provide a smooth, unobstructed air flow path. In addition to the combustible nature of high-flex hoses (white plastic and foil types), they tend to kink and collapse easily when the dryer is pushed back against the wall.

As shown below, this condition not only collects lint easily, but it severely restricts the air flow needed for efficient drying.

There are a few ways of dealing with this commonplace situation.



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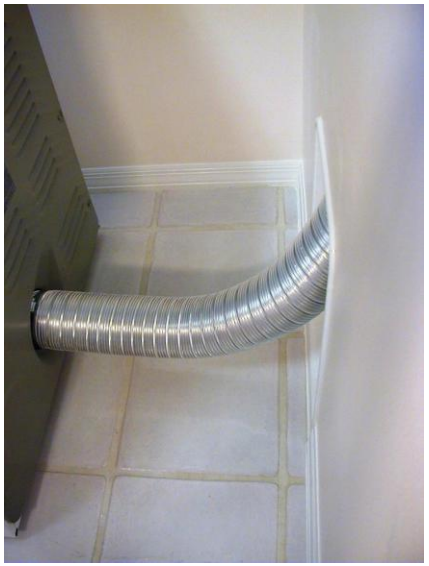
One is to gain some more space in the wall behind the dryer. There is an innovative product known as the Dryerbox® which provides a recessed pocket in the wall around the dryer vent pipe. This gives the vent hose a place to go without crushing when the dryer is pushed into place.

The Dryerbox® is inexpensive and highly recommended for new construction. Retrofit versions for existing laundry rooms are also available if you are willing to cut the wall and vent pipe. More info at www.dryerbox.com.



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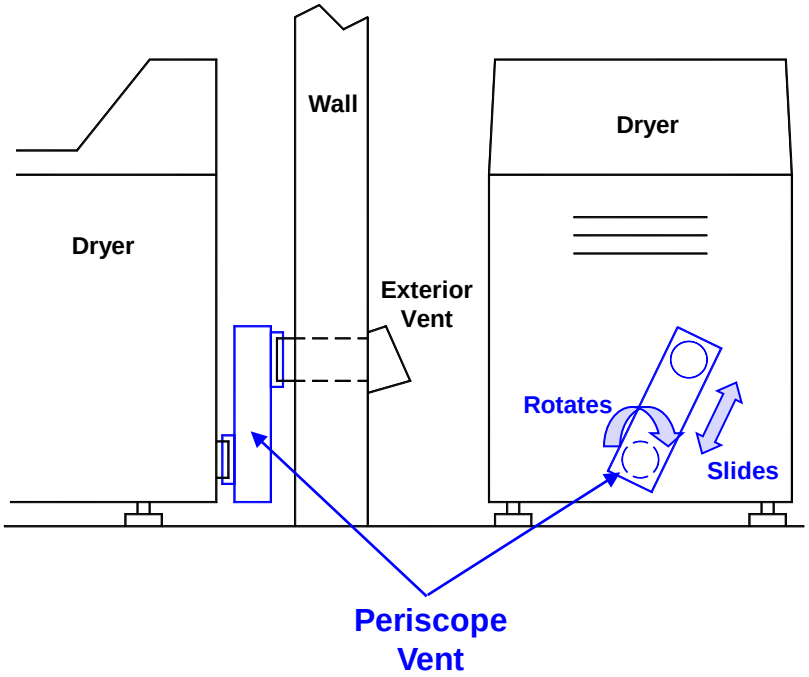
Dryer Vent Cleaning

Another way to avoid crushing a dryer vent hose is to not use a hose at all.

Flexible hoses have convolutions to permit bending, which tend to disrupt airflow and collect lint. A rigid metal connection from the dryer outlet to the vent pipe in the wall is preferable because it has smooth internal walls. A sheet metal box can be used instead of a vent hose.



These boxes are also known as periscope vents where the distance between inlet and outlet can be adjusted by sliding the two halves of the assembly closer or farther apart. This connection allows the dryer to push back against the wall as close as 2-½in.

Trimming of the sheet metal may be required. All joints should be sealed with metal tape to minimize lint escape.

Periscope vents are a good option but may be difficult to connect in some laundry rooms. With easy access behind the dryer when everything is in place, it is easy to install a periscope vent. Without easy access it may be difficult to rotate and align the outlet tube with the vent pipe in the wall.

A periscope vent should also be cleaned periodically along with the vent pipe.

Dryer Vent Cleaning

One more option is to use a flexible semi-rigid metal hose with swivel elbows. An example of this type is shown below. Complete kits or individual components can be purchased as needed. It can be used with or without the Dryerbox®.

The semi-rigid hose is solid aluminum so it will not easily burn should lint ignite inside.

This design allows you to clamp 90 elbows at both the dryer and the vent pipe with the dryer moved out from the wall for working room.

Then the two halves are connected together to complete the loop, and the dryer can be pushed back against the wall. With the elbows, the vent hose can be pushed as close as 4in from the wall. The hose is more resistant to crushing than the high-flex material and the elbow flanges also keep the dryer from pushing back too far, further protecting the hose.

There is a basic variation of this kit with a single hose loop (no middle coupling).

This semi-rigid vent hose should be cleaned periodically along with the vent pipe.

Vent loop kits or parts are available from home improvement stores, appliance shops and online retailers.

Dryer Vent Cleaning

In addition to cleaning the dryer vent ductwork, it is important to clean the dryer's internal air flow path.

The easiest and most obvious part is the lint screen. Using your hand, pull all the lint out of the screen before running each load of laundry. Even with to this, some lint remains in the fine mesh of the screen, so it should also be brushed from both sides monthly to remove more lint and improve air flow. A vacuum cleaner makes this job less messy.

Also avoid using fabric softener sheets in the dryer. The chemicals in them are not only harmful to our bodies, but they build up on the screen, restrict air flow and attract lint. Many appliance manufacturers discourage them for this very reason.

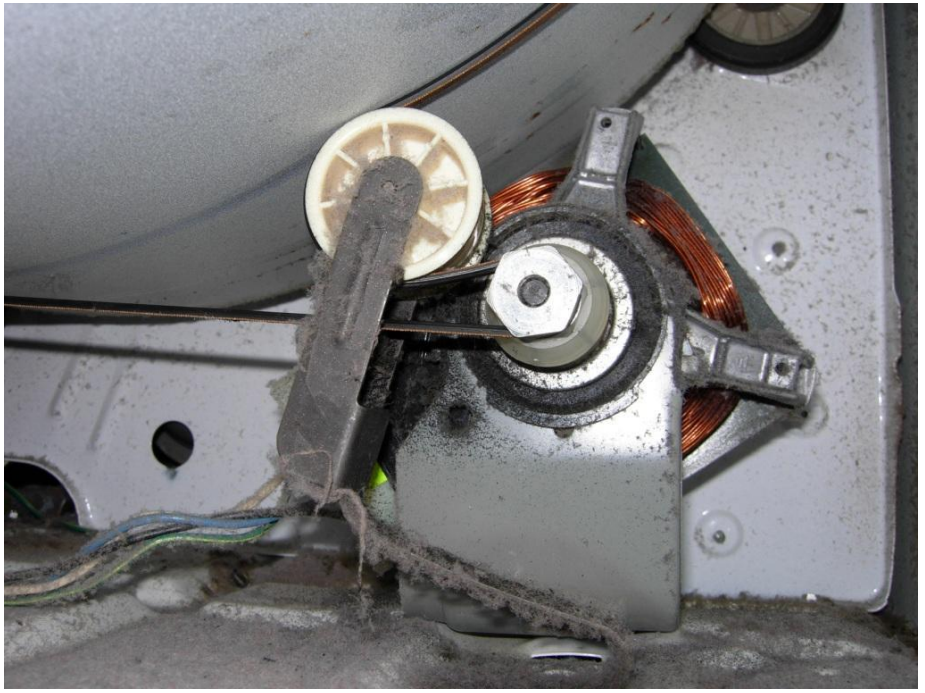
If you continue to use softener sheets in your dryer, make sure to wash the screen in hot soapy water monthly. It is difficult to tell when the screen's air flow is restricted by chemicals, as it will appear clean. Try running water through it before and after washing and you will see a remarkable difference!

It is also important to clean the lint screen's internal ductwork or cavity. This requires a special brush that is available at many home improvement, hardware and general merchandise stores. As a bonus, the LintEater® kit includes a brush just for this application.

Clean this cavity monthly by repeatedly dipping the brush all the way down and all around inside the lint screen cavity until no more lint is pulled out. Use a vacuum cleaner to remove lint with each pass to start with a clean brush every time.

Dryer Vent Cleaning

One more maintenance task is to clean the interior of the dryer itself. This may be beyond your comfort level to do yourself, so a professional or handyman may be required. Disconnecting the power and gas to the dryer is the first step, then moving it out for access after disconnecting the vent hose. Cleaning requires opening the rear and inside bottom of the cabinet, which varies by manufacturer.



The internals of a dryer get dirty and linty very quickly. All the air that is blowing out the vent comes from the floor around the dryer, pulled from the room. In addition to normal dust, lint from the vent hose leaks out into this area. This inevitably gets sucked into the dryer to swirl around or stick to the cabinet, motor, wires and piping, or draw into the heating element. Even if it doesn't ignite, this stuff gums up the moving parts, which will eventually cause trouble.

Dryer internal cleaning frequency depends on usage and cleanliness around the appliance. Annual cleaning is a good idea and is recommended by professionals.

Dryer Vent Safety Summary

- Clean lint screen with each dryer load
- Avoid using fabric softener sheets, or at least wash the lint screen periodically
- Clean lint screen cavity monthly
- Use semi-rigid vent hose or rigid metal ductwork only; never use high-flex plastic or foil hoses
- Use clamps or metal tape for all ductwork connections; never use sheet metal screws
- Periodically clean ductwork from dryer outlet to exterior vent (both pipe and hose)
- Periodically clean the interior of the dryer cabinet

Web links to dryer vent hazard statistics:

www.dryerbox.com/reduces_fire_hazard.htm	Links to many articles
www.dryerbox.com/news_articles/dryer_fire_potential.pdf	Dryerbox.com article
www.net**fa.dhs.gov**/downloads/pdf/tfrs/v7i1.pdf	Professional Engineer's article
www.cpsc.gov/CPSCPUB/PUBS/5022.html	US Government document

www.buildersbest.com/faq_fires.htm Excellent video on duct type and fire hazard

Web links to dryer vent information:

http://fixitnow.com/appliantology/dryervent_ultimate.htm	Venting guide
www.dryerventcleaning.com/	Cleaning guide and other info
www.dryerbox.com/dryer_venting_guide.htm	Venting guide
www.linteater.com/	Linteater® duct cleaning system