

#6 Flue pipes

Flue pipes, also known as smoke pipes, are part of the venting systems of many woodburning appliances. These pipes direct flue gases from the appliance flue collar to the entrance to the chimney. Together with chimneys (discussed in WISE fact sheet #5), flue pipes play a critical role in the safety of your woodburning appliance.

THE FLUE PIPE ASSEMBLY

- The size, length, arrangement and installation of the flue pipe all affect the performance and safety of your woodburning system.
- Think of the flue pipe as a heat exchanger transferring heat from flue gases to the room. The flue pipe can account for up to 40% of the total heat output from a woodburning appliance installation.
- The flue pipe should be as short and direct as possible. It should never be longer than 3 m (10 ft.) and should not have more than two 90° elbows.
- The flue pipe should have the same diameter as the appliance flue collar. The flow of hot gases through the flue pipe will be smoother if 45° elbows are used instead of 90°.
- It's advisable to install a flue pipe thermometer to monitor the temperature of flue gases in the pipe.

SUITABLE FLUE PIPES

Only flue pipes that meet the requirements of the Canadian Standards Association (CSA) standard B365 are suitable for use with woodburning appliances. What flue pipes are safe?

Single-Wall Pipes

- at least 24 gauge painted steel
- stainless steel
- minimum 24 gauge enameled pipes

Double-Wall Pipes

➤ certified sealed double-wall flue pipes. These require less clearance than single wall pipes, and keep flue gases hotter than either single-wall or vented double-wall pipes. (See WISE fact sheets #3 and #4 for more information on clearances).

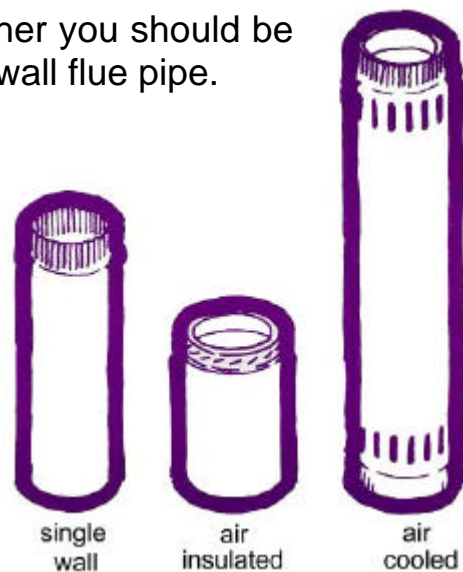
➤ certified vented double-wall pipes. These transfer more heat to the room than do single-wall pipes. Avoid long runs of vented double-wall flue pipes, because the gases may be cooled too much, causing rapid creosote accumulation. Because of the air space between the walls, the pipe can usually be installed closer to combustibles than a single-wall.

A WETT-certified professional can help you decide whether you should be using a single wall, vented double-wall or sealed double-wall flue pipe.

Don't use:

- Blue steel pipes. These are made of thin, uncoated steel and are not thick enough for most woodburning systems.
- Galvanized steel pipes. Hot flue gases will vaporize the galvanized coating, releasing toxic gases and quickly make the pipe thin and fragile.

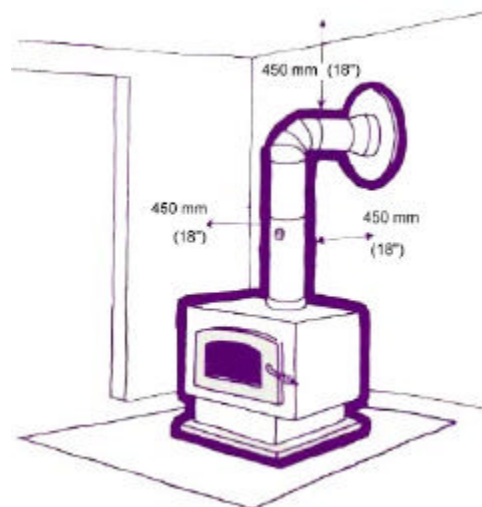
Different types of flue pipes



SAFETY CHECKLIST

Certified double-wall flue pipes should be installed according to the manufacturer's instructions. For single-wall flue pipes, use this safety checklist.

- have joints with a 30 mm (1-1 /4 in.) overlap.
- be secured by three screws at each joint.
- be no longer than 3 m (10 ft.).
- not have more than two 90° elbows.
- have an inspection wrap, slip section or pipe coupler properly clamped to the pipe joint if there are no elbows, to allow for expansion.
- be securely supported horizontally at 1 m (3 ft.) intervals by non-combustible supports.
- slope up towards the chimney at least 20 mm/m (1 /4 in./ft.)
- have a secure, sealed connection with the chimney.
- have the crimped ends of the pipes pointing down, towards the appliance, so that condensation from the chimney will drain towards the appliance without leaking through joints.
- never pass through an attic, roof space or closet, or through a combustible floor or ceiling.
- have a minimum clearance of 450 mm (18 in.) from combustible material, unless the pipe or combustibles are protected with suitable shielding. (Refer to WISE fact sheets #3 and #4 for more information on clearances and shielding.)



Clearances for a single-wall flue pipe

WHAT ABOUT MAINTENANCE?

The flue pipe is often the weakest link in a wood heating system. The thin steel of single-wall pipes corrodes rapidly when attacked by creosote and moisture, and this corrosion can weaken the joints in elbows. The connection between the flue pipe and a masonry chimney may need upgrading to meet current standards.

➤ Inspect your appliance's flue pipe assembly regularly. Check frequently at first, until you get to know how quickly deposits build up.

➤ You may wish to have a WETT certified serviceperson do the inspection and cleaning. If you do it yourself, be prepared! Working with flue pipes can be a messy job, so have your tools and vacuum cleaner ready before you start, and be sure to wear a dust mask and eye protection.

➤ Separate the flue pipe assembly into manageable sections, but leave most sections screwed together. Be sure to mark the joints that you do separate, in order to make reassembly easier. Take the assembly outside to inspect and clean it. Carry it with one end in a pail to keep creosote and soot from spilling in the house.

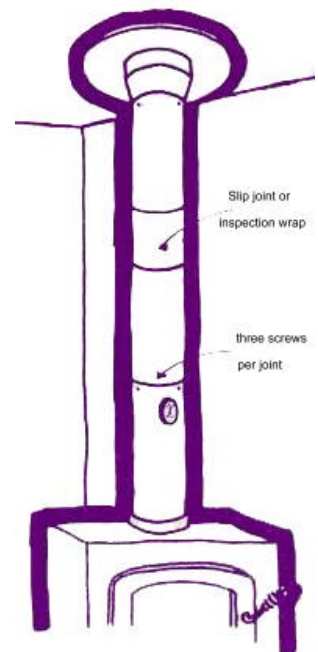
➤ Use a properly sized plastic or metal chimney brush to clean the pipes, and note any weak sections as you clean them. If the pipes have corroded noticeably, replace the entire assembly.

➤ Reinstall the assembly, making sure that each joint is securely fastened with three screws. Make sure the assembly meets all the requirements of the Flue Pipe Installation Safety Checklist.

This fact sheet is intended only to provide an introduction to the topic of "flue pipes" not a "how to" manual! Be sure to consult a WETT certified professional for more detailed information and explanations.

The WISE Fact sheet Series

1. Is Your Wood Heat Installation Safe?
2. Space Heating With Wood
3. Appliance and Flue Pipe Clearances
4. Reducing Clearances With Heat Shields
5. Chimneys
6. Flue Pipes
7. Operating Your Appliance ...Safely
8. Maintaining Your Heating System
9. Fireplaces
10. Fireplace Inserts
11. Purchasing, Processing and Seasoning Wood



Properly installed single-wall flue pipe

12. Central Heating With Wood

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Wood Energy Technical Training (WETT)

The Wood Energy Technical Training Inc, is a non-profit, educational institution established in 1988. Provincial affiliates of WETT Inc are dedicated to chimney and venting system safety, and to the elimination of residential chimney fires, carbon monoxide intrusion and other chimney related hazards that result in the loss of lives and property. WETT devotes its resources to educating the public, chimney service professionals, and other fire prevention specialists about the prevention and correction of chimney and venting system hazards.

WETT has developed a training and certification program for wood heat appliance installers, inspectors, chimney sweeps and other professionals called the "Wood Energy Technical Training" (WETT) program. Be sure that any wood heat professional you consult is WETT certified. Look for the WETT logo, it's your best guarantee of reliable advice. For additional information, contact:

Wood Energy Technical Training Inc at 1-888-358-9388 or fax at 1-416-968-6818 or email at info@wettinc.ca

The local British Columbia affiliate is the Wood Energy Technicians of British Columbia, aptly named "**WETBC**". They can be reached at zigi@shaw.ca or phone/fax is 1-604-941-4172. Our web site is at www.wetbc.ca

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