

## **Guide to Getting your Wood Burning Installation Right the First Time**

If you are going to book a WETT inspection, it makes sense to carry out your own pre-inspection and fix the defects that you can find on your own before you pay me to find them. This will, in most cases, allow you to avoid the requirement of a follow up inspection.

First, a bit of a disclaimer: I can't cover all of my training and experience in a short article. Things can get complicated. So, following this little guide won't necessarily ensure that you'll get your installation perfect, but I can help you get past the most common pitfalls. Also, if you've got a complicated installation, you can feel free to call or e-mail me with your questions and I'll try my best to talk you through it.

[A Guide to Residential Wood Heating](#) is an excellent companion to this guide.

### **Is it a certified appliance?**

The first step in your inspection is to figure out if your stove is certified by an accredited laboratory. The most common labs are CSA, Underwriters Laboratory (ULC), Warnock-Hersey, and OMNI testing Laboratories. They will have a sticker on the appliance (usually on the back) that specifies the required clearances around the stove. This certification also comes into play in a few other aspects of the installation. If it's not certified, not to worry, you can still make the installation "safe" (I put safe in quotes because nothing is foolproof); it's just a little harder, as you will see.

If you have an insert that was installed by a previous owner, you probably can't see the sticker without removing the insert from the fireplace – a bit of a daunting task for most homeowners. If the manual is available, the installation specs will be there. If the manual is not available, I can help you try to figure out the make and model so that you can download a manual. The manual will specify the required clearance to the mantle, nearby walls and combustible facings on the front of the fireplace. It may also specify the minimum dimensions of the fireplace into which the unit is inserted.

### **Floor protection**

There are two aspects to floor protection: thermal protection - protecting the floor from radiant heat from the bottom of the stove - and ember protection.

For ember protection, you need to have continuous, non-combustible flooring under your appliance, extending 8" beyond it at the rear and sides and extending 18" in front of the wood loading door. When I say "continuous" it means there can be no cracks where embers could get down to combustible material. So, patio stones won't work unless you grout between them.

If you have a certified appliance, you don't need to worry about thermal protection. The legs are designed to be long enough to keep the firebox far enough from the floor that the floor won't get too hot. If you have an uncertified appliance, you will need to have

additional thermal protection under the stove. This gets complicated (different requirements for different leg lengths); so, it's best to call me about this.

### **Appliance Clearances**

Clearances around the appliance seem pretty straightforward...until they get complicated. Look at the sticker on the appliance to tell you how much space you need between the appliance and any combustible construction.

Define combustible construction? Combustible means anything that is capable of catching fire and burning. This includes drywall. And a wood framed wall with brick in front of it is still combustible. So, unless you've got a solid masonry wall, you will have to comply with the required clearances.

The sticker likely won't tell you what the clearance to the ceiling needs to be. You have to calculate this by measuring the height of the stove in inches and subtracting that from 82". That is:

Top clearance = 82" – height of stove

Why? You ask. It's a long story. Have ice cream or liquid refreshments available at your inspection and I'll explain it.

If you have an uncertified stove, don't rush off and measure its height. The clearance to the ceiling is required to be 60".

If you have a wood burning furnace, the sticker will likely give you a clearance from the top of the plenum and the first six feet of duct.

The sticker will tell you the required clearance from the back, sides and corners of the appliance. The clearance from the front or wood loading door is always 48". So, it's simple, right? Just measure from the stove to the nearest combustible items (walls, ceilings, furniture). If you have less than the required distance, you have to move the stove, move the combustible item or install shielding to reduce the required clearance (see "Clearance Reduction" below).

### **Flue pipe**

The flue pipe is the pipe (usually black) that connects the appliance to the chimney. Measure the distance between the pipe and any combustible construction. Required clearance around the standard single wall flue pipe is 18". Double wall flue pipes have a sticker stating the required clearance (usually 6").

The flue pipe needs to be fastened at each connection with at least 3 screws and its elbows may not exceed 180 degrees (i.e. no more than two 90 degree elbows).

## **Chimney**

The chimney must be appropriate for wood burning. This means it should be a masonry chimney or a listed 650 C chimney. Type A chimneys used to be approved for wood burning, but have been found to be unacceptable and should be replaced. If you have a factory built chimney that was installed before 1990, chances are it's a Type A and will have to be replaced.

A masonry chimney requires 2" clearance to combustibles unless it's an exterior chimney which only requires 1" clearance. The subfloor may also come as close as 1" from a masonry chimney. I rarely see masonry chimneys that comply with the required clearance. So, if you've got a wood stove venting up a masonry chimney, chances are you've got some work to do. You can remove the combustible material or you can put an insulated liner in the chimney. Talk to your local chimney sweep about which option is best.

All (at least every one I've ever seen) factory built 650C chimneys require 2" clearance to combustibles. Follow the path of the chimney and make sure you've got 2" clearance the whole way.

I often see chimneys exposed as they pass through portions of the house. They meet clearance to combustible construction, but they are required to be enclosed so that combustible materials (e.g., boxes or clothes in a closet) don't come in contact with the chimney.

The final thing with chimneys is support. A masonry chimney should be supported on a foundation (i.e. masonry extending to a footing). In older homes they are sometimes supported on a wood frame. This is not an acceptable arrangement.

Factory built chimneys are often installed using a makeshift support. I'm often impressed with the ingenuity of some people (as well as their thriftiness). However, anything other than an approved support supplied by the manufacturer is not acceptable.

## **Clearance reduction**

The clearances around the appliance, flue pipe and, in theory, the chimney may be reduced by installing shielding as described in [A Guide to Residential Wood Heating](#) pages 31-33.

## **Dangerous Locations**

It is generally not recommended to have a wood burning appliance in a shop or garage where there may be gasoline or solvent fumes. However, it is permissible as long as the appliance is raised 18" off the floor. In addition, if it's in a garage, it must be protected from impact. The regulations are vague here, but one or two steel posts well anchored to the floor should suffice.

Simple right? So, go to it. Feel free to ask questions about complicated situations or easy ones too. And good luck.

Once again, I want to re-state that I haven't done an exhaustive description here. There still may be other issues. But following this primer should prevent the most common errors and allow you to get your wood stove operating safely as soon as possible.