

# Wood Heat Guide

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# Types of Appliances

## Wood Stove

- Free standing
- Considered a room heater, not meant to heat the entire home
- Certified to ULC-S627
- Can inspect all sides, floor, and flue pipe, label usually on back

## Insert

- Must be installed in the fire chamber of masonry fireplace
- Considered a room heater, not meant to heat the entire home
- Connected to existing chimney, must be relined with stainless steel liner
- Typically, the existing hearth does not extend far enough to meet current code
- Certified to ULC-S628
- Label is usually behind the surround, the fan assembly, or the side panels. Usually not visible without removing parts
- Can inspect distance to side walls, hearth extension, and mantel
- May require a fresh outdoor air kit
- Safety Surveyor inspection required

## Factory Built Fireplace

- Made to be installed within combustible construction
- Connected to metal pre-fab chimney
- Some manufacturers only certify their appliance to be used with specific chimneys
- Certified to ULC-S610
- Manufacturer may require a minimum/maximum height of chimney, degree of offsets
- Can inspect distance to side walls, hearth, and mantel
- Usually installed in new construction, best to inspect after framing is complete, before finishing wall so you can see the distances to combustibles and chimney type
- May require a fresh outdoor air kit
- Safety Surveyor inspection required

## Hearth Mounted Stove

- Similar to an insert, sits on the hearth, further out of the masonry fireplace
- Considered a room heater, not meant to heat the entire home
- Connected to existing chimney, must be relined with stainless steel, and must have a base "T" installed as part of the liner
- Typically, the hearth does not extend far enough to meet current code
- Certified to ULC-S628
- Label is usually behind the surround, not visible without removing parts
- Can inspect distance to side walls, hearth extension, and mantel

## Cooking Range

- Free standing
- Considered a room heater, not meant to heat the entire home
- Takes large floor area, typically high required clearances
- Certified to ULC-S627
- Can inspect all sides, floor, and flue pipe, label usually on back

## Open Masonry

- Requirements fall under National Building Code of Canada
- There is also the CSA standard A405, however, it is not adopted into the NBCC
- Non-combustible hearth must extend 400 mm (15 ¾ inches) in front and 200 mm (8 inches) to the sides
- Combustible material can not be within 150 mm (6 inches) of fireplace opening
- Combustible material within 300 mm (12 inches) can not project more than 38 mm (1 ½ inches)

## Furnace

- Certified to CSA B366.1
- Clearances required for plenum and ducts is on label
- If installed as a standalone, plenum, branch, and return ducts must be non-combustible construction
- If installed in conjunction with oil fired furnace, wood furnace must be certified as an add on appliance, must say on label

## Boiler

- Certified to CSA B366.1
- If installed in conjunction with oil fired boiler, wood boiler must be certified as an add on appliance, must say on label
- Must have a “dump zone”. A special zone to dissipate heat that operates if there is a power failure

## Outdoor Wood Boiler

- Certified to CSA B366.1
- Must be installed outdoors, if installed in a building, that building is not insurable
- Manufacturers installation requirements must be followed
- Area around boiler kept clean
- Non-EPA rated appliance minimum 50' from insured structure, EPA rated minimum 30' distance
- Safety Surveyor inspection required

## Pellet

- Certified to ULC-S627
- Free standing
- Considered a room heater, not meant to heat the entire home
- Label can be on back, inside hopper lid, or inside control panel
- Safety Surveyor inspection required

## Sawdust/Chip

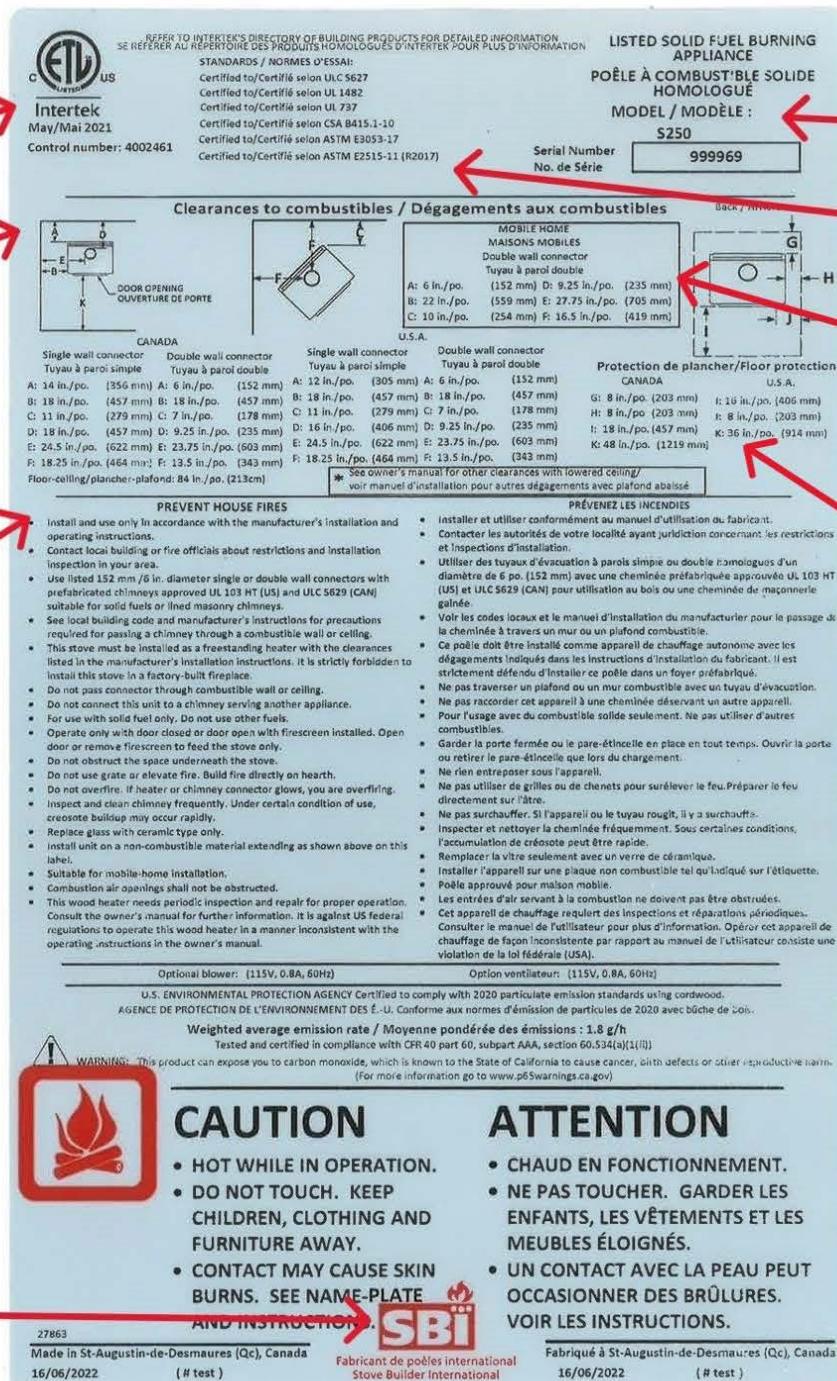
- Certified to CSA B366.1
- Could be gravity or auger fed
- Self feeding systems have fall under specific regulations, Safety Surveyor inspection required

# Labels/Certification

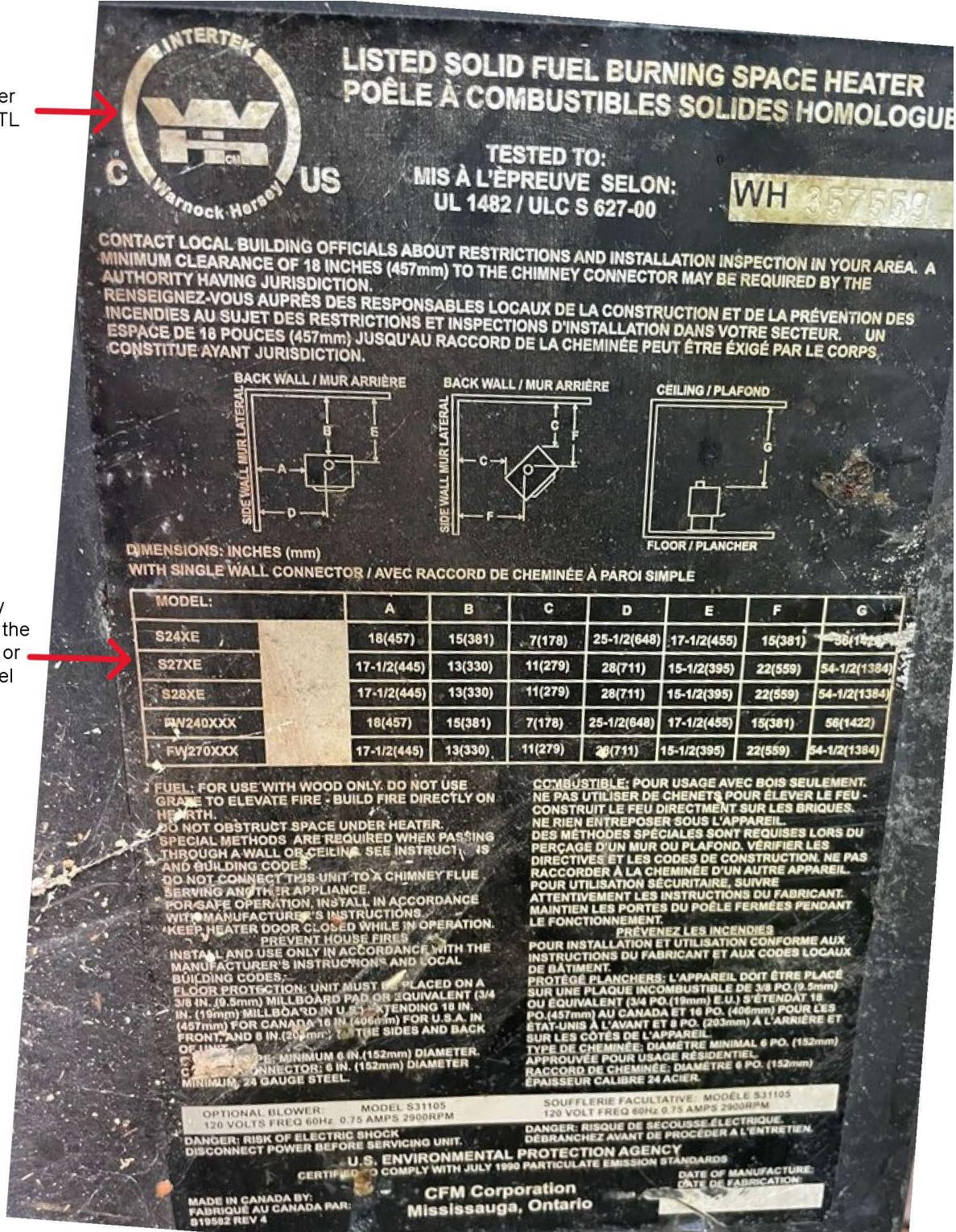
**ETL Symbol.** Lab that performed the standard testing. "C" means certified for use in Canada

Clearances to combustibles section. Sometimes has measurements required for different countries, and using single or double wall pipe

This section has other installation requirements



Intertek Warnock-Hersey. Another common testing lab, similar to ETL



- If the appliance has no label, or there is no testing lab symbol stating the CSA/ULC standard, the appliance must be considered uncertified

## Mobile Home Installations

- Certified to ULC-S627
- Wood burning appliances installed in mobile homes must be certified for use in mobile homes and state on the label
- An appliance certified for use in mobile homes typically:
  - Is provided with hardware for venting through combustible construction, installation on a combustible floor, and an outdoor combustion air kit
  - Has provision for being attached to the floor
  - Is connected to the chimney by certified double wall pipe

## Garage/Workshop Installations

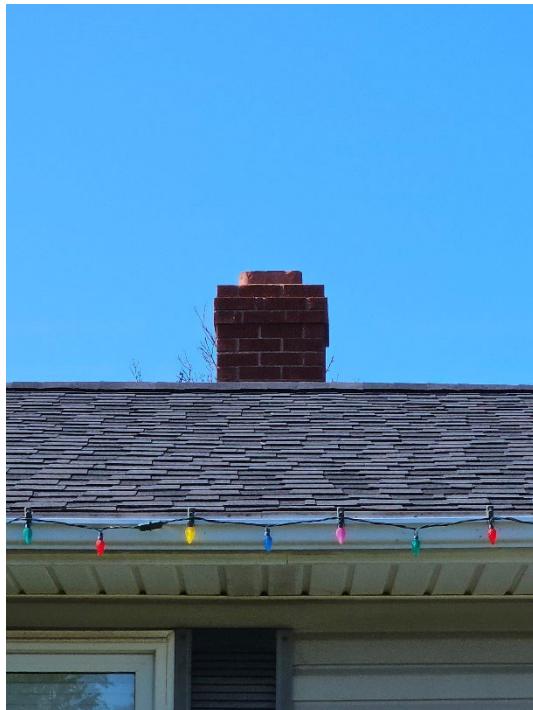
A wood burning appliance must not be installed in a location where a corrosive atmosphere, flammable gas or vapor, combustible dust, or combustible fibers might be present. It may be installed in a

- storage or residential garage, provided that the appliance is mounted in such a manner that any component representing a source of ignition, such as a blower or the bottom of the firebox, ash cleanout, is at least 450 mm (18 in) above floor level and protected against physical damage; or
- commercial repair garage or other facility used for the maintenance of equipment that might involve volatile flammable substances, provided that
  - the appliance is located in a room that is separated from the remainder of the building by a vapor-tight fire separation;
  - the room specified above is not directly accessible from the location of the volatile substances; and
  - all duct penetrations of the vapor-tight fire separation are located at least 2 m (6.5 ft) above the floor level.
- Metals, plastics, and wood are considered to be combustible dust. Wood burning appliances must not be installed in this type of environment.

## Chimneys

- A solid fuel burning appliance can not vent into the same chimney as a propane fired appliance
- Only solid fuel burning appliances certified for use with oil fired equipment shall connect to a vent system serving an oil-fired appliance
  - If the solid fuel burning appliance is certified for use with oil fired equipment, it should say on the label
  - There are no wood stoves certified for use with oil fired equipment
- Two or more appliances shall not be connected to the same chimney unless;
  - The appliances are on the same floor
  - The flue pipes are connected to a manifold as close to the chimney as practicable, or directly to the chimney in the following order;
    - If only solid fuel is used, the smallest diameter flue pipe is above
    - If different fuels are used, the solid fuel flue pipe is below
- If the chimney extends five feet or more from the roofline, it must be braced

### Brick Shell Clay Lined



- Clay lined can only withstand one flue fire
- Must be able to see the clay protruding from the top, and see the clay at the bottom of the cleanout
- Check for missing brick and mortar, freeze/thaw damage can cause severe damage within a few years
- Masonry chimney's fall under the regulations of National Building Code of Canada

## Brick Shell Stainless Steel Liner



- Stainless steel liners are certified to ULC-S635 and ULC-S640, uncertified, homemade liners are not to be used
- Liner must protrude out top of masonry, and continue to bottom of chimney



## Metal Pre-fab



- Metal pre-fab chimneys venting a wood fired appliance must be certified to ULC-S629
- The stickers that show the certification will usually fall off. All chimneys certified to ULC-S629 have two inches of insulation. If the inside diameter of the chimney is six inches, the outside diameter will be ten inches. The inside diameter of the chimney will match the size of the flue pipe
- Must extend a minimum of one meter (three feet) above where the chimney comes in contact with the roof. The top 600 mm (two feet) of the chimney must extend above any adjacent structure within ten feet horizontally
- Metal pre-fab chimneys that pass through any occupied area (including closets) must have an enclosure built around it. The minimum air space around the chimney is two inches
- Metal pre-fab chimneys must terminate at the ceiling of the room where the wood appliance is and at a ceiling support kit. The wood appliance is not meant to take the weight of the chimney
- Because this type of chimney is a certified component, it can only be used with certified equipment of the same make and model. An Excel chimney can not be used with Selkirk supports or a homemade bracket

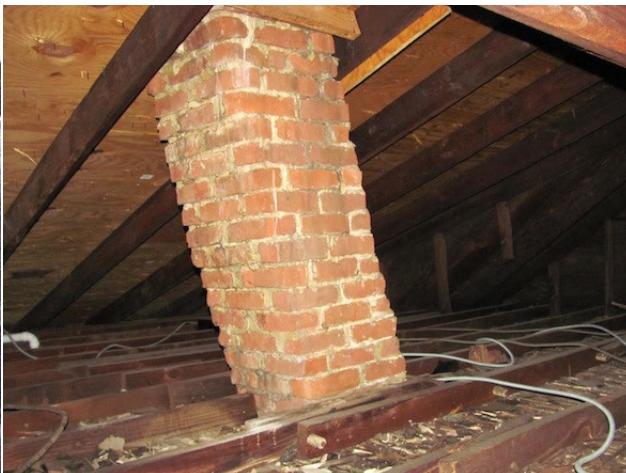
## Pellet Vent

- 
- Certified to ULC-S609
  - Pellet vent is smaller in diameter than other chimney systems
  - Can be vented through the roof or side vented through an exterior wall
  - If vented through exterior wall, vent should rise a minimum of four feet so natural draft can take over in the event of a power failure
  - Because it can be side vented, manufacturers installation methods must be checked for proper distances to windows and overhangs

## Brick Shell Unlined

- 
- If liner is not visible, safety surveyor inspection required
  - Unlined chimneys venting a wood appliance build creosote very easily and are high risk for chimney fires

## Bracket Type



- High risk of collapsing and causing severe damage
- Not insurable, underwriting should be notified immediately

## A-Type/Square-A



- Square steel chimney, sometimes has fake brick wrap on it
- Not to be used to vent a wood burning appliance
- If any wood appliance is venting into this type of chimney, it must be disconnected immediately and not be used

# Venting System

## Single Wall Pipe

- Only part of the entire system that can be uncertified
- Regulations come from B365 Installation Code
- Single wall flue pipes shall:
  - Have non-combustible supports at max intervals of one meter of horizontal length
  - Not exceed three meters
  - Not exceed 180 degrees change of direction
  - Be designed to allow for expansion (elbow, telescopic section)
- Galvanized steel must not be used
- The crimped end of the pipe must point towards the appliance and be mechanically fastened with three screws a joint
- Must not pass through floor, ceiling, closet or any concealed space
- Minimum clearance of 450 mm (18 inches) to combustible material
- If proper shielding is used, clearances can be reduced by 50%

## Double Wall Pipe

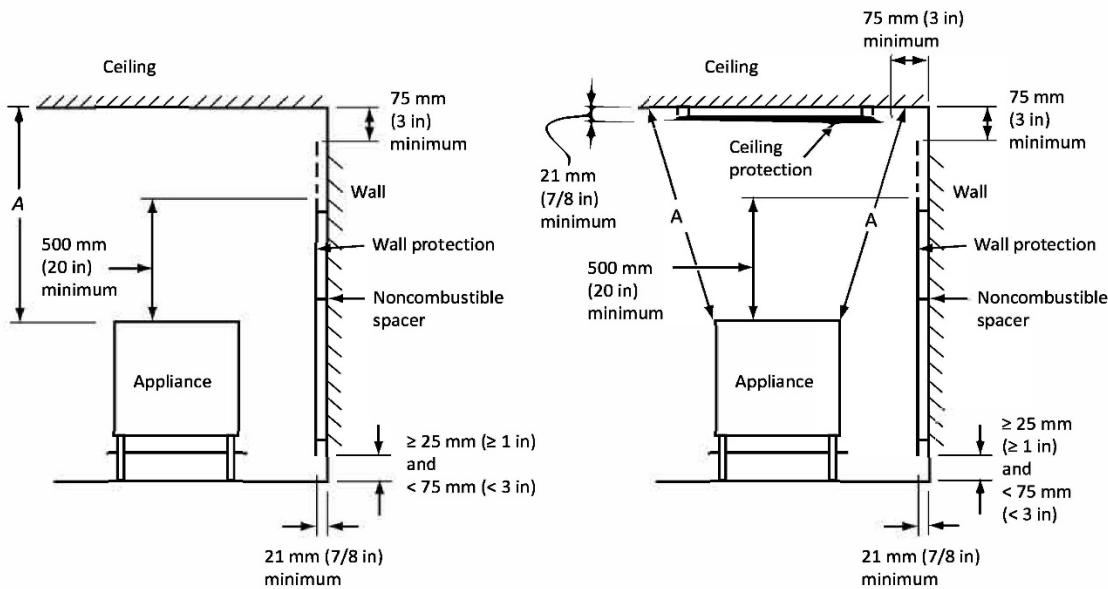
- Certified to ULC-S641
- Most commonly certified to six inch clearance
- Manufacturers installation requirements must be followed
- Must not pass through floor, ceiling, closet or any concealed space
- Because this type of vent pipe is a certified component, it can only be used with certified equipment of the same make and model. Can not be mixed with single wall pipe

## Shielding

CSA B365 allows for a reduction in clearances for certified equipment with the use of a certified heat shield or if the following requirements are met;

- Wall protection shall be installed to provide clearance along the bottom of the shield equivalent to at least 25 mm (1 in) and not more than 75 mm (3 in), and clearance along the top of the shield of at least 75 mm (3 in), to allow a vertical flow of air. This protection shall extend at least 500 mm (20 in) above the appliance and at least 450 mm (18 in) beyond the sides of the appliance, as shown in figure 6
- The wall protection shall be separated at least 21 mm (7/8 in) from the combustible material by noncombustible spacers
- Ceiling protection shall be sized in accordance with Figure 6 and shall have a minimum edge clearance of 75 mm (3 in) on all sides.
- If an adhesive is used to support noncombustible material, it shall not ignite or lose its adhesive qualities at temperatures likely to be encountered.
- The wall protection mounting hardware shall be installed to allow full vertical ventilation. Such hardware shall be placed not closer than 200 mm (8 in) from the vertical centerline of the appliance [see Figure 6 b)], except for diagonal corner installations [see Figure 6 c)]. Wall protection mounting hardware that extends from the surface of the shield into combustible material may be used only at the lateral extremities of the shield.
- Minimum clearances to any unprotected portions of walls and ceilings shall be maintained.

**Figure 6**  
**Application of wall and ceiling protection**

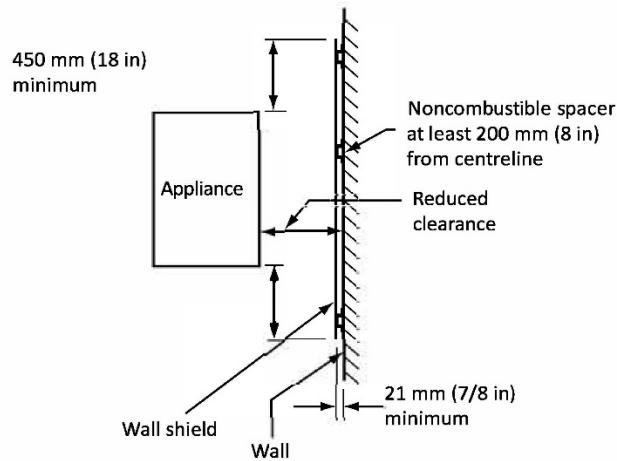


**Note:** The ceiling protection applied shall extend far enough in each direction to produce the required clearance, A.

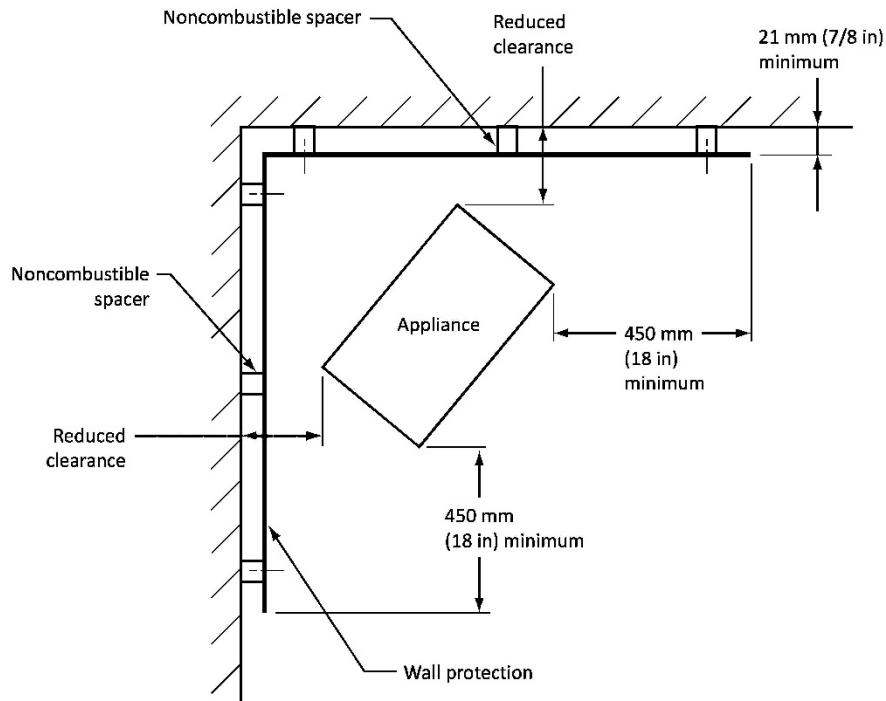
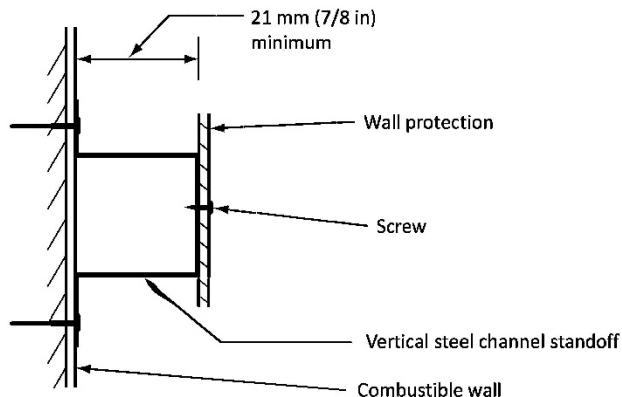
**Legend:**

A = the required clearance to combustible ceiling construction with no protection

a) Elevation



b) Top view

**Figure 6 (Concluded)****c) Corner installation, top view****d) Noncombustible spacer (vertical channel standoff), top view**

If proper shielding requirements are met, the clearances to combustibles are reduced by the following:

B365-17

*Installation code for solid-fuel-burning appliances and equipment*

**Table 3**  
**Reduction in appliance and ductwork clearances from combustible material with specified forms of protection**  
**(See Clause 8.2.4.)**

<b>Type of protection (shield)</b>	<b>Permitted reductions in clearance, %</b>	
	<b>Sides and rear</b>	<b>Top</b>
Sheet metal, a minimum of 0.47 mm (28 gauge) in thickness, spaced out at least 21 mm (7/8 in) by noncombustible spacers	67	50
Ceramic tiles, or equivalent noncombustible material, on noncombustible supports spaced out at least 21 mm (7/8 in) by noncombustible spacers	50	33
Ceramic tiles, or equivalent noncombustible material, on noncombustible supports, with a minimum of 0.47 mm (28 gauge) thick sheet metal backing spaced out at least 21 mm (7/8 in) by noncombustible spacers	67	50
Brick, spaced out at least 21 mm (7/8 in) by noncombustible spacers	50	N/A
Brick, with a minimum of 0.47 mm (28 gauge) thick sheet metal backing, spaced out at least 21 mm (7/8 in) by noncombustible spacers	67	N/A

# Inspection Practices

- Upon arrival, note the type of chimney and liner
  - Are there any obstructions within ten feet horizontally of the top of the chimney?
  - Approximately how far does it extend from the roof, should it be braced?
- Check wood burning appliance for label, and take note of make/model and required clearances
- Measure from sides/rear/corners of appliance to the closest combustible material. If there is a non-combustible material, (brick behind the appliance) measurement is taken through the brick to the closest combustible
- Measure floor pad, other than pellet stoves, the requirement for the floor pad is;
  - Non-combustible, durable, and continuous;
  - 18 inches in front of fuel loading doors; and
  - 8 inches beyond all other sides
- Check appliance components for damage or disconnection
  - Door/glass gasket, firebox, fire brick
  - Automatic draft controls
  - While checking components, pay close attention to items that don't look factory installed. Modified components (welded, replaced by something other than factory parts, additional parts installed) void the certification and are not allowed
- Inspect venting system
  - Does the appliance vent into the same liner as another appliance?
  - Double wall or single wall pipe
  - Check clearances, length of pipe, total degrees change of direction, crimped end toward the appliance, three screws a joint
  - if metal pre-fab chimney
    - Is there a proper ceiling support kit?
    - Is the chimney enclosed on upper floors?
    - If visible, is there any damage/dents?
- If shielding is installed;
  - Does it meet the required distance beyond the top (20 inches) and sides (18 inches) of the appliance?
  - 1 to 3 inches off the floor?
  - 1 inch off the wall with non combustible spacers?
  - Allows for a vertical flow of air?
- Wood burning appliances must be a minimum of 5 feet from an oil storage tank

When inspecting a wood burning appliance, if you are unsure of anything or find a red flag, submit an endorsement with the appropriate wood code (FWI) for an inspection.