

Woodstove and Chimney Inspections

Looking for potential fire hazards

Top 10 Safety Issues:

1. Through the wall thimble clearances:
 - a. 'Wall pass through' fires account for 80% of house fires caused by woodstoves. **Page 1** shows UL listed remedies for various appliances.
 - b. Example: Springville job- 8" Fireclay thimble passed through plank wall with only 1" clearance to surrounding wood. Stone veneer often hides presence of combustibles behind. Don't be fooled.
 - c. Solution: **Page 8** of **Rhino Rigid** section shows four **NFPA** suggested on site, constructed thimbles.
 - d. **Page 2** shows two UL listed insulated thimbles which are the best choice. **Page 3** shows installation techniques.
2. Extra or unused thimble holes/breaches in chimney:
 - a. Often hidden by "pie plate" covers, paneling, wallpaper, or even studded wall.
 - b. Example: Waymart job – Upstairs stove removed; "pie plate" cover on thimble surface; creosote was trapped in horizontal thimble. Then chimney fire ignited the surrounding studs.
 - c. Visual interior inspection with lowered drop light or video camera necessary to assume that no breaches are present.
 - d. **NFPA Rule: ONE** appliance per flue.
 - e. Solution: **Insul Plug**, UL listed plug, for unused thimble holes. see **page 4**.
3. Stove clearances **page 5**:
 - a. **NFPA** guidelines for non UL listed stoves (36" rear and sides.) **page 5**
 - b. Refer to *Owner's manual* or UL listing plate on back of stove. **page 6**.
 - c. Reduction shields are available; most require 1" air space behind. Some reduce by ½; other insulated boards by 2/3.
4. Stovepipe clearance:
 - a. Single wall black pipe 24 gauge or heavier; 18" clearance to combustibles. **see page 5 and 7**. No duct pipe or galvanized pipe allowed for wood stoves.
 - b. Double wall black pipe/low clearance connector; most require only 6" clearance for this ventilated pipe. Refer to **page 8**.
 - c. Single wall black pipe with pipe shield on 1" spacers, 6" clearance acceptable with airspace in vertical installations only. **page 8**
5. Chimney clearances:
 - a. Masonry chimneys flue lined with 4" masonry walls 1" to surrounding combustibles. Most chimneys –do not meet this requirement. Solution: Stainless steel lining with proper insulation. See **page 3 and 4** in **Rhino Rigid** installation manual. Also refer to **page 15, 16 and 17**.
6. Factory built metal chimneys (**page 9**)
 - a. Excellent choice if installed properly. Eight to ten popular brands. New Milford example: Homeowners bought GSW kit at *Lowes*, then used an 8" single wall galvanized pipe through ceiling and roof.

- b. Most UL listed Factory built chimneys require 2" clearance to combustibles maintained by factory engineered supports, fire stops, and radiation shields .(see page 10)Use all components specified in owner's manual. Example: Many homeowners leave out fire stops, flashings, thimbles and radiation shields, creating numerous hazards. No insulation or building materials can block or encroach on the required clearance. Example: Elk Mountain area: Homeowner blew in cellulose insulation and although clearance to surrounding wood was sufficient, a fire resulted from lack of ventilation and obstructed airspace around the chimney.
7. Hearth clearance:
- a. Non -UL stoves require 18" front, back and sides,(page 5). UL listed stoves , as established by owner's manual or UL label on back of stove. See page 11 for example.
 - b. Fireplaces -always 18" minimum in front.
 - c. Woodstoves radiate heat downward .If hearth is on a combustible floor , extra protection may be needed. Example: Heat shields are often required. Pedestal bases, long legs may be exceptions.
8. Fireplace inserts:
- a. Many house fires occur because of improperly installed inserts.
 - i. Example : # 10 Hinds Street ,Montrose, Pa. Creosote buildup behind damper, left uncleaned for years caused tremendous chimney fire and house damage.
 - ii. Solution: A stainless direct connect ,(if flue tiles are in good condition) ,is an economical option .Page 12.
 - iii. Best solution: Full stainless reline with insulation wrap enables easy and thorough cleaning, reduces creosote buildup, and contains potential chimney fires. Page 13.
9. Chimney Maintenance and Inspection:
- a. A qualified, professional chimney sweep , should inspect and clean every chimney at least annually .See page 14.
 - b. Many Homeowners cause fire hazards by improper operation of their woodstove.
 - i. Burning unseasoned wood creates creosote.
 - ii. Burning too slowly and shutting off air creates creosote.
 - iii. Older airtight stoves in particular lack newer technology such as catalytic combustors or secondary burn systems to reduce creosote formation. See page 14 of State Farm brochure).
 - iv. Chimney or pipes are not cleaned to prevent creosote buildup.
 - c. Even pellet stoves , gas / oil furnaces ,and boilers are susceptible to chimney blockage, tile degradation ,and collapse which causes smoke damage, carbon monoxide poisoning and furnace blow back.
 - i. Oil and gas chimneys are thought by many to be maintenance free. Very untrue! Most insurance claims for smoke blow backs in oil and gas appliances can be traced to an inadequate, poorly constructed, or maintained chimney system. This problem can be avoided.
10. Chimney requirements for oil and gas appliances:
- a. Most require a flue lined masonry or Class A factory built chimney.
 - b. Some modern Hi Efficiency oil and gas appliances use power venting, direct venting or even venting on PVC pipe because of low stack temperatures and high moisture content in the emissions.

- c. *High efficiency* furnaces and boilers installed into older masonry chimneys are a major contributor to insurance claims relating to furnace blowbacks, carbon monoxide poisoning and smoke and soot damage to the home interior.
 - i. These newer furnaces , being more efficient, waste less heat up the flue. Condensation often occurs half- way up the chimney causing acidic moisture to assault the clay liners and brick structure destroying the chimney from the inside out.
- d. Read the signs.

Reference **Forever Flex** Brochure:

- 1. Tile degradation (**Page 2**)
 - a. Shale and pieces fall down blocking the flue or more likely the thimble at chimney base.
- 2. Carbon monoxide or soot leaking into home. Black stains at pipe seams. (**Page 3**)
- 3. Eroded brick in mortar:
 - a. Many 80 year old chimneys are unlined and interior and exterior disintegration is hastened. Back page.
- 4. Efflorescence on chimney exterior:
 - a. White, powdery substance and moisture appears on chimney exterior,
- 5. Moisture on walls and ceilings close to the chimney. **Back page.**
 - a. Often obvious below attic where excessive condensation occurs due to colder temperature around the chimney.
- 6. Stucco falling off chimney exterior/mortar and brick deterioration.
 - a. Excessive moisture bleeding through the masonry subjects the exterior to freeze thaw damage and acidic damage.

Solution: Stainless Steel Relining

- 1. One piece- acid resistant stainless steel liners, are available in many sizes and shapes to fit almost any chimney.
 - a. They are easily installed/economical
 - b. Lifetime warranty
 - c. Contains the moisture
 - d. Saves the chimney structure
 - e. Prevents chimney and tile degradation
 - f. Every *Hi Efficiency* oil and gas system installed into a masonry chimney should have a stainless liner.
 - g. Many furnace installation companies and technicians are insisting on a stainless steel lined chimney when upgrading to high efficiency furnaces . However , more needs to be done to reduce insurance claims related to carbon monoxide and smoke blowback from these new furnaces. They are being installed into older chimneys and are unable to handle the excessive , acidic moisture. These claims are preventable. Thorough inspections are the key to finding flaws before they become fires!

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