

## **Standard Operating Procedure Level 2 Inspection Masonry Fireplace**

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*This Standard Operating Procedure (SOP) is promulgated by the Chimney Safety Institute of America (CSIA) solely as general guidance for chimney sweep professionals. Since all operations are different and since it is not possible to foresee all potential hazards, this SOP must be tailored to fit the needs of each particular operation. CSIA does not warrant in any way whatsoever that adhering to this SOP will reveal every possible defect in an appliance, fireplace, venting system or chimney. Accordingly, CSIA makes no guarantee, nor does it assume any responsibility, for any damage, claim, or legal action that may arise in connection with a chimney sweep professional's use of this SOP.*

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### **Introduction**

NFPA 211 defines the inspection requirements for fireplaces and chimneys, and has defined three levels of inspection. A Level Two inspection is recommended when the conditions of use are changing, such as adding a new appliance, or replacing an existing appliance with a dissimilar one (different fuel, efficiency or type) or if a Level 1 inspection is not sufficient to determine serviceability of the venting system. A Level 2 inspection is also recommended when the property is being sold; if you are planning on lining or relining the chimney or if there has been a building or chimney fire, weather or seismic event or any operating malfunction likely to have caused damage to the chimney. A Level Two inspection includes everything defined from the Level 1 inspection, with numerous additions. Review the CSIA SOP for Level One Inspection of a Masonry Fireplace. Also keep in mind that a Level Two inspection should include all flues within a chimney and their connected appliances.

A Level Two inspection should include all *Accessible* portions of the fireplace, chimney and connected appliance(s). *Access* could require the use of common tools to open or move panels or doors, and may require the use of ladders. A Level 2 inspection will require that you go on the roof to investigate the chimney and inspect the system within accessible attics, basements and crawl spaces. Inspectors should consider their personal safety prior to entering these areas (standing water, heat, confining spaces, etc.) If you are not able to access these areas, or the client requests that you don't, be sure to note those exceptions in your report and provide a reason.

In this level of inspection the primary focus is to determine if the chimney is suitable for continued use under new or changed conditions. Video scanning (or similar inspection) of the chimney interior is required during a Level Two inspection. If it is not possible to video scan the chimney interior due to size or multiple offsets, be sure to note that in your report. During the video scanning be on the lookout for any unused openings (thimbles) into the flue and recommend that they be properly sealed if you encounter them.

### **The Fireplace**

Measure and record the size of the fireplace opening. If there is a combustion air supply, make sure it operates properly and is not blocked. Open the ash dump cover and look closely into the opening. Look for combustible materials under the firebox

floor. You can often make this determination by dropping a light into the ash dump and looking back up with a mirror. Many times a wooden form is left in place during the construction of the fireplace floor. During the basement or crawl space inspection, look for any combustible framing or construction forms under the hearth or hearth extension.

Open or remove the damper, if possible, and inspect the smoke chamber and shelf with a light and a mirror. Make notes of any irregularities. Determine if the smoke chamber dimensions (height, depth and wall angle) are correct. Are the smoke chamber walls parged smooth? If the walls are exposed brick, what is the material type and overall condition of the walls?

### **Steel Fireplace Units**

Steel fireplace units should not have masonry in contact with the metal side walls. There should be a bond break or the mortar will crack and result in a gap. If you find this to be the case, write it on the job sheet. Metal smoke chambers should have filler similar to mineral wool where the tile is joined to the top of the smoke chamber. Many times this area has no such filler and the clay flue liner may be resting directly on the metal smoke chamber. Make notes of your findings. If the unit uses heat exchanger tubes above the fireplace or air channels on either of the sides, inspect these areas for signs of rust or damage.

### **Listed Chimney Lining Systems**

If there is a listed chimney liner installed it must be installed in accordance with the manufacturer's instructions. It must also be of the appropriate material for the class of service and properly sized. It may be necessary to remove a storm collar or rain cap when you go to the roof to properly evaluate the whole installation. Cast-in-place liners should be of the proper thickness and not have large irregularities on the surface.

### **Attic Inspection**

Once in the attic it should be possible to determine if clearances are met on interior installations as the chimney passes through the floor and confirm it is properly firestopped. Make sure there is no insulation against the chimney. Look for any electrical wires in contact with the chimney and proper clearances as the chimney passes through the roof. Look for water damage anywhere it might be visible, especially just below the flashing.

### **Inspecting the Top**

You will inspect the crown (wash) and the flashing. If there is a cricket installed, inspect it as well. NFPA 211 requires a bond break where the top tile passes through the crown to allow for vertical expansion of the flue.

Get an accurate measurement of the interior dimensions of the flue liner and make a determination as to whether it is properly sized based on the fireplace opening. NFPA 211 provides the following guidelines for flue sizing:

- For round flues, 1/12<sup>th</sup> of the fireplace opening area

- For square or standard rectangle flues, 1/10<sup>th</sup> the fireplace opening area
- For rectangle flue with aspect ratio of 2 to 1 or greater, 1/8<sup>th</sup> of the fireplace opening area

Measure the height of the flue from the top of the chimney to the bottom of the liner. If there are offsets in the liner make a note of the degree of offset. Note the overall chimney condition and construction material. If there is a rain cap make sure it is not obstructed and does not create a restriction at the top of the chimney.

You should be able to determine if there appears to be sufficient space between multiple flues to provide for the required wythe. Proper chimney termination height can also be determined. While you are up there, look down the adjacent flues. If there is obvious damage, write it on the job ticket.

### **Outside the Chimney**

Inspect the outside air supply if there is one installed. Look at the clean-out and confirm that the door closes tightly. Look for any irregularities in the construction where the chimney is joined the structure. Make note of any irregularities where the shoulder of the chimney tapers, such as staining or other indications of water entry.

### **Delivering Your Report to the Client**

After you have completed the inspection, you should discuss your findings with the client, provide them a copy of the report, and obtain their signature on the report. Without the client signature it is difficult to prove that you informed them of the conditions observed. You should maintain the inspection report in a permanent filing system.