

## CLEANING AND PRESERVATION OF CHIMNEY FLUE

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### 1. Introduction

The following study presents the methods of prevention the chimneys from damages. Moreover the study portrays the ways of cleaning and preservation of chimney conductors from greasy, glassy and hard soot. Inappropriate fuels such as fresh wood, peat, lignite have a great content of water, which in the effect causes formation of greasy, glassy and hard soot (photo 1). These kinds of soot are extremely difficult to remove by



Fig. 1 Glassy soot in the chimney flue

traditional methods, e.g. using the set of ropes. Cleaning the chimney from the above mentioned soot, which have been accumulated for years, is practically impossible [3,4].

There are also other reasons which lead to creation of the above mentioned phenomena, such as: weak chimney sequence (stack effect), the constructional defects of the chimney, or inappropriate service of the hearth. Excessive accumulating of soot in the chimney flue can result in the damage of the construction of chimneys or clogging chimney flue by accumulated pollution. The effect which is much more hazardous than temporary limitation in the chimney capacity is uncontrolled burning of the soot. The temperature of blazing soot especially glassy soot reaches approximately 1300°C. Too high heating of the bricks from which the construction of the chimney is built, can also cause the fire (photo 2), and concurrent widening gases and explosions may lead to bursting of the chimney. The spark which most of the times associates the violent burning of the soot, can even result in the fire in the closest neighborhood. The next hazard resulting from accumulating of soot in the chimney flue may lead to carbon monoxide poisoning of the people, which can cause damages of one's health, and even cause the death. Therefore, it is necessary to perform periodical cleaning of the smoke chimney flue from accumulating soot in order to avoid any dangers. Nowadays, there are not any effective mechanical and chemical methods which enable efficient cleaning of the chimney flue from above mentioned soot. Burning of chimney flue is the only effective way of eliminating the above mentioned substances.

## **2. The action preceding the burning of chimneys flue**

Only experienced chimneys foremen can perform burning of chimney flue [4,5]. Before starting the burning of the chimney it is essential to undertake the following preparatory actions. It is extremely important to estimate technical state of the chimney. Before the burning, it is necessary to remove affirmed irregularities, it is also necessary to prepare a set of renovation tools [1].

## **3. The methods of chimney flue burning**

Two methods of chimney flue burning are distinguished [1].

### **3.1 The method of burning by the smooth gas**

In this method the process of burning runs at intervals, being conceived at the last interval near the outlet of the chimney. This method is commonly applied in burning chimney flues, and is based on burning the chimney flue from the pit in little door ramrod, with the use of solid fuels. This technique can cause the damage in the construction of the chimney, because burning soot on the whole length of the flue can overcome the safety temperature, especially when larger settlements of soot were accumulated. In order to avoid the risk of above mentioned process, it is recommended to burn soot at intervals starting from the top of chimney [2]. The flame of blazing gas should be adjusted and its size should be adapted to the section area of chimney flue. Burning chimney walls follows through slow and gradual leveling of the gas torch. Dropping parts of the burning soot should be removed instantly.

### **3.2 The traditional method of burning chimney flues**

In the traditional method, process of burning unfolds from the basis to the outlet of the chimney. When the flue which is being burnt out is high or has got refraction, all actions

should be carried out in stages. In such case the chimney is divided into intervals and process of burning is executed from the upper interval. When the large quantity of soot is accumulated in the chimney flue, the massive scintillation can occur or so-called blocking of the chimney flue. Similar problems can arise when soot are burnt out simultaneously on longer intervals (or on the entire length of the flue at one time). Due to that fact it is wisely advised to have a specialist equipment serving to eliminate above mentioned phenomena. Solid fuel, liquid fuels and oil are frequently used in the process of burning (fuel provides high temperature and high flame). Only experienced persons should supervise the process of burning of chimney flue from the very beginning to the end [2]. During the entire process the irregularities and hazards should be eliminated instantly. One can not allow to situation which may destroy the construction of the chimney or lead to fire.



Fig 4 Picture from the process of burning out the chimney flue

#### **4. The preservation of the chimney flue after burning**

When the process of burning is completed, it is advised to make certain that there is no hazard of fire. The next stage of works, is to regenerate chimney flue. It is necessary to re-

estimate technical condition of the chimney flue. After execution of above mentioned actions it is needed to preserve the chimney flue on the entire length using the special mortar

### Literature

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### Summary

The paper is trying to present the problem of renovation of chimney flue which are defective due to the accumulated soot. The problem of increasing dirtiness and damages of chimney walls were presented. Accumulated soot in the chimney flue can result In the damages of chimney Walls, or the structures of the buildings or even cause the fire. The main aim of that particular publication is to draw attention to the problem of accumulated soot. It is very difficult to remove the soot. In many cases it is only possible to remove the soot using burning method. The paper also portrays the reasons of creation of dirtiness and damage of chimney walls. In extremely bad conditions of the chimney flue, it can lead to carbon monoxide poisoning.