

# Potential Fire Causes

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The elimination of potential fire causes can be a difficult task, but is essential to the probable or conclusive determination of cause. The consideration of the four potential fire causes; incendiary, accidental, natural, and undetermined, as well as potential ignition sources are also applied to the fire cause and the elimination process.

The first step to the elimination of potential causes occurs with the determination of an area of origin. During the investigation, the investigator narrows down the size of an area, from the structure of origin, to the room of origin, and then to an area of origin. Each step of this process also eliminates potential ignition sources that are occurring in non-origin areas. Ignition potentials outside of the area of origin are eliminated by the lack of physical indicators of fire extension.

This involves testing the fire cause hypothesis by mentally considering a fire spread scenario and applying it to the respective area. One method of testing the hypothesis is to ask yourself, "consider how the fire would look different if it started in a respective area." A more challenging test is to articulate how the fire would look different for each respective cause potential.

The smaller the area of origin, the fewer the ignition potentials. The obligation of the investigator is to confine the area of origin as much as possible but not use this process as a convenient method to geographically eliminate a nearby ignition source. One systematic method of determining an area of origin is to determine the room of origin, then use fire behavior to divide the room in half; one half that does

not contain the origin and the other which does. Further examination may allow the remaining half of the room to then be divided into a quadrant. The quadrant will contain the area of origin and all ignition sources in the quadrant should be identified, examined, documented, and eliminated or identified as a cause.

Sometimes, the physical aspects of the scene are significant enough to relieve some of the burden of eliminating other causes. As an example, if the area of origin is the corner of a living room, a firebomb is located in the debris, and witnesses in the living room state that an object crashed through the window, landed in the corner, and started a fire, it won't take extensive efforts to eliminate an electrical failure, discarded smoking materials, or any other accidental ignition source.

However, in the application of the systematic approach, it still behooves the investigator to remain consistent by documenting and eliminating potential ignition sources in the area of origin, even if the cause appears to be obvious.

In some investigations, the elimination process is the critical factor to the determination of cause, such as when the ignition source is no longer present or existing. This situation can occur with incendiary fires, where a single matchstick or disposable lighter has been taken from the scene by the responsible party.

This can also occur when the fire has destroyed the ignition source, such as a candle fire. A candle fire and an open flame fire will present similarly, since they are both the result of a laminar flame, and so the circumstances surrounding the incident and witness statements may be a critical factor.

Fire behavior and the characteristics of the first fuel ignited will also assist the investigator in a discarded smoking materials fire, where the ignition source will also not remain.



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The previous scenarios use the elimination process as a crucial component of the cause determination. This process, sometimes called negative corpus, has been the subject of concern for investigators and the legal community. When using this approach to determine the cause of the fire, be sure that the opinion is supportable. To form an opinion that a fire is incendiary simply because no other obvious cause was observed can be difficult to support.

In conclusion, be studious in identifying potential ignition sources in and around the area of origin. Use photographs to document the potentials and use specific language regarding the process of elimination for each ignition source in the origin and cause report.