

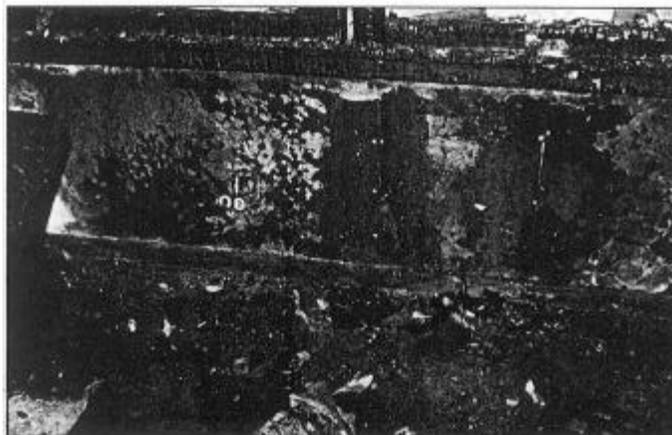
Misconceptions About Fire Investigation

By Carter D. Roberts

Part II / Hot Spots

Recently, a very good friend of mine who is an Insurance Adjuster was discussing a fire loss he was working. He mentioned that the Fire Investigator had located several “hot spots” and, as a result, was suspecting the fire to be arson. It is not uncommon for Investigators evaluating fire losses, particularly total fire losses, to identify several hot spots and interpret those hot spots as separate and unconnected origins. The practice is often done without any regard to whether other facts might or might not support such a decision.

Years ago most of the contents of most dwellings were made of similar materials; and as a result, Fire Investigators could expect the fuel loads in most houses to be similar. Since the temperatures at which these materials burn should also be within an expected range, any deviation or hot spot was regarded as evidence of arson – and with some justification-since hot spots were in fact not normal. In modern days, however, increasing numbers of houses contain furniture items constructed partially or completely of polyurethane, which can be expected to burn with great intensity, particularly after the flashover stage has been reached. Polyurethane can burn at a temperature in excess of 2000 degrees ad, in addition, will often liquefy and run like an accelerant. The Investigator must use particular caution not to interpret the char pattern or “hot spot” left from burning polyurethane as that of a liquid trailer.



The origin of this fire was at a lamp on the table and was a result of over bulbing. Curtains and other plastics cause low burning under the window.

New problems in fire investigation are not limited to dwellings. Factories today produce and contain chemicals that were unheard of fifty years ago. In factories, where the contents vary considerably, one would expect to find many products that could create excessive heat resulting in several hot spots throughout the structure. The fact that a structure,



Burning curtains dropped to the floor causing a hot spot which was incorrectly interpreted as a separate and unconnected origin. (This photo is in the same structure as photo on page 4).

whether it is a residence or a commercial building, has many hot spots does not today necessarily within itself indicate arson.

The Investigator must know what the contents were in the building and make an interpretation as to the type of heat transfer and the effect of geometry of the building on the combustion process. Fortunately, through better Fire Codes, we are beginning to return to those days when a severe temperature deviation should raise the Investigator's eyebrow.



The Investigator needs to know the exact inventory of a building and arrangements of its contents before deciding that a hot spot has any significance as to the origin and cause of the fire. If the Fire Investigator finds a significant increase of heat in one area of a structure, then by all means he should thoroughly investigate the cause. The fact that there are several hot spots in a structure may or may not be important, but the phenomenon by itself does not confirm arson.