



<b>ATF-LS-FRL Project Approach</b>	Published Online: <b>March 2018</b>
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The Fire Research Laboratory (FRL) coordinates with Special Agent/ Certified Fire Investigators (SA/ CFI) to apply engineering principles to crime scene and physical evidence evaluation for the purpose of assisting the client with understanding specific limited aspects of the fire event, such as ignition, material properties, visibility, etc. The FRL Project Scheme represents the standard approach and the FRL Analysis Scheme defines the services provided by the FRL. The SA/ CFI request for assistance memo verifies the scope of analysis provided by the FRL. The FRL provides support in the form of fire scene examinations/ documentation, reviews of investigative reports (timelines, witness statements, etc.), literature searches, calculations (non-fire dynamics), fire dynamics analyses and testing/ experimental simulations. The FRL simulation experiments can be categorized as either material/ product experiments or scenario experiments.

#### Material/ Product Experiments

Material/ product experiments are tests conducted to measure properties of single materials or groups of materials (products) or to measure the reactions of the items to specific test conditions. Physical evidence shall be submitted to the FRL by the SA/ CFI, when applicable.

#### Scenario Experiments

Scenario experiments are tests conducted to evaluate the reaction of items or the environment produced by group of items when subjected to a specific set of initiating conditions.

The test plan development for a simulation experiment is regarded as a rendition of the incident, or subset of the incident, as directed by the SA/ CFI request and takes into account the fire scene examination/documentation and investigative reports, as well as the FRL calculations and fire dynamics, when applicable. The test plan is constructed with FRL-approved methods and incorporates acquired information from prior FRL simulations to ensure the quality of the FRL services, the efficient and effective use of resources and the safety of the participants. Utilization of measuring devices in the simulation is intended to realize the data collection in correspondence with the manufacturer specifications and the expectations of the test plan. The execution of the simulation is continually monitored to assess conformance with the test plan.

The FRL-approved methods for the experiments are those methods published in international, regional or national standards and those methods that have been developed and evaluated in accordance with ATF-LS-5.4 Test Methods – Method Validation and the FRL commissioning procedures. Published standards are developed by consensus standards writing organizations that include, but are not limited to, the National Fire

Protection Association (NFPA), the American Society of Testing and Materials (ASTM), and the International Organization for Standardization (ISO).

Experiments can be conducted on-site at the FRL facility and off-site at other locations. Investigators and individuals authorized by FRL management may witness a simulation.