

Localization Challenges in the Structural Firefighting Environment

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Location and tracking systems are beginning to become commercially available to first responders for use in structure fires and other emergencies. In order to develop standardized performance metrics and test methods that capture the harsh environment in which these systems may be used, information is being collected from the literature and from full-scale and field tests that have been conducted at BFRL in past years.

Characterizing Fire Environments: Field Testing



Bensenville Townhomes, scheduled for demolition



Install furnishings & instrumentation



Post fire damage

Controlled burn, data collection

Characterizing Fire Environments: Full-Scale Testing



Hose Stream Study

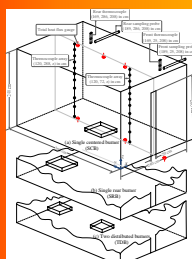
In full-scale testing, experimental work has focused on gas temperatures and constituents, and smoke, dust, and water concentrations. Fuels tested include hydrocarbons (methanol, heptane, propylene, toluene), wood, upholstered cushions, and carpeting with padding, each of which produce different fire environments that may be encountered by the fire service.



World Trade Center Study

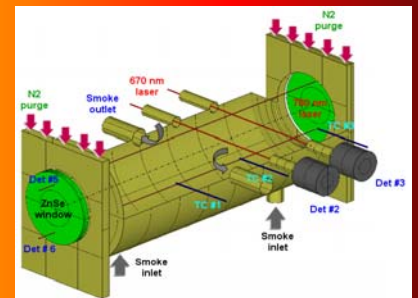
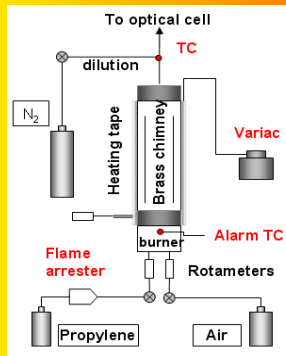


Underventilated Compartment Fires



Rough Duty RFID

Characterizing Fire Environments: Reduced-Scale Testing



Optical smoke cell

Reduced-scale testing allows insight into the effects of elevated temperature, heat flux, and smoke in a well-characterized, repeatable, reproducible manner.



Radiant Panel



Heat Flow Loop

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