

Research Program to Evaluate the Performance of Modern Residential Smoke Alarms

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The objectives of this project are to evaluate the performance of current smoke alarm technologies and test conditions that are representative of current, fatal residential fires. As a part of the work, NIST staff will evaluate the efficacy of current requirements for the number and location of smoke alarms and examine other fire detection technologies that may be used in combination with smoke alarms. This project will provide the opportunity to evaluate the potential performance gains both for detection of fire (smoke) and CO hazards detection as well as nuisance alarm reduction in actual dwelling configurations. All detectors evaluated will be initially characterized at NIST and re-examined between each group of field tests to ensure that they continue to perform normally following fire exposure. Modeling will also be used to extrapolate the limited number of test configurations to enhance the usefulness of the data.