

Explosion Hazards Evaluation

KEYWORDS

Explosives

Blast Waves

Fragment Impact

Blast Resistance

Hazards Evaluation

Terrorist Bombing

Shaped Charge

Ballistics Testing

Injury Prediction

Explosion Hazards

Homeland Security

Accidental explosions and deliberate bombings by criminals and terrorists cause extensive structural and property damage, personal injury, and loss of life. Southwest Research Institute (SwRI) provides practical solutions to problems associated with blast effects, fragmentation, penetration, and protection. The SwRI Engineering Dynamics Department offers a unique blend of experimental, analytical, and numerical expertise which permits a multifaceted approach to solving safety problems.

Capabilities

- Fundamentals of explosions
- Software development
- Loading from blast waves and fragment impact
- Structural response
- Debris dispersion
- Blast-resistant design
- Human injury prediction
- Safety and hazards analyses
- Hydrocode simulation
- Finite element analysis
- High-speed data acquisition
- High-speed photography

Experience

- Code development for security evaluation
- Car bomb source prediction
- Short course development and instruction
- Hazards evaluation of high explosives (HE) facilities
- Shaped charge development
- Many varied experimental programs

Facilities

- Ballistics and explosives test range
- Remote test sites
- Testing up to 1000 lbs HE



Terrorist bomb damage to Alfred P. Murrah Federal Building, Oklahoma City

D005117



Post-accident debris and damage to rocket motor test facility

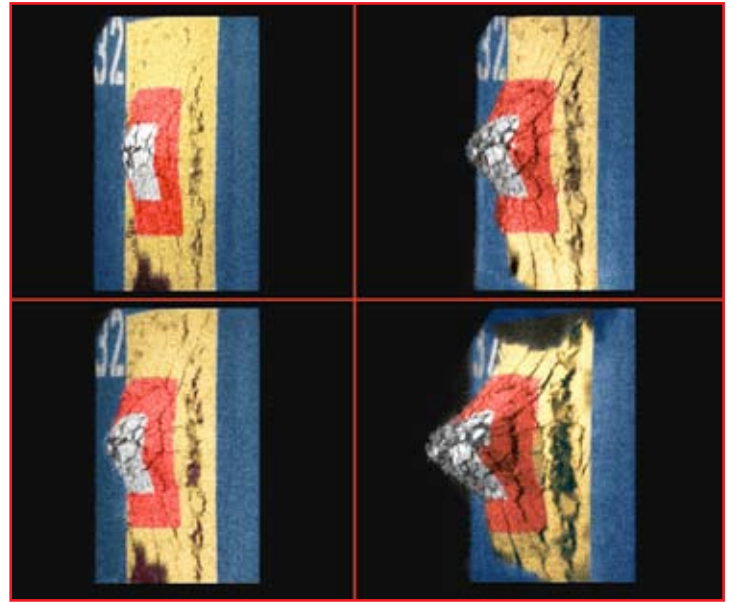
D005011



Propellant assembly line equipment undergoing ignition testing

D013914

SwRI Engineering Dynamics Department staff members analyze the explosive effects of bare and cased charges including structural breakup, debris throw, air blast, and scaling.



D004966



Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for more than 3,300 employees who perform contract work for industry and government clients.

**We welcome
your inquiries.**

**For additional
information,
please contact:**

P. A. Cox
Staff Engineer
(210) 522-2315
pcox@swri.org

Scott A. Mullin
Manager, Ballistics and Explosives Engineering
(210) 522-2340
smullin@swri.org

Engineering Dynamics Department
Mechanical and Materials Engineering Division
Southwest Research Institute
6220 Culebra Road • P.O. Drawer 28510
San Antonio, Texas 78228-0510

Southwest Research Institute Website: www.swri.org
Engineering Dynamics Department Website: www.engdyn.swri.org