Secure Against Fire and Embers (SAFE)

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"Putting First Responders First"

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Science & Technology

The New York Times

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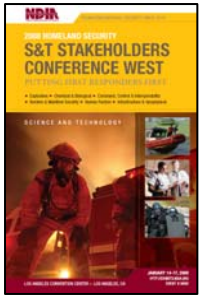
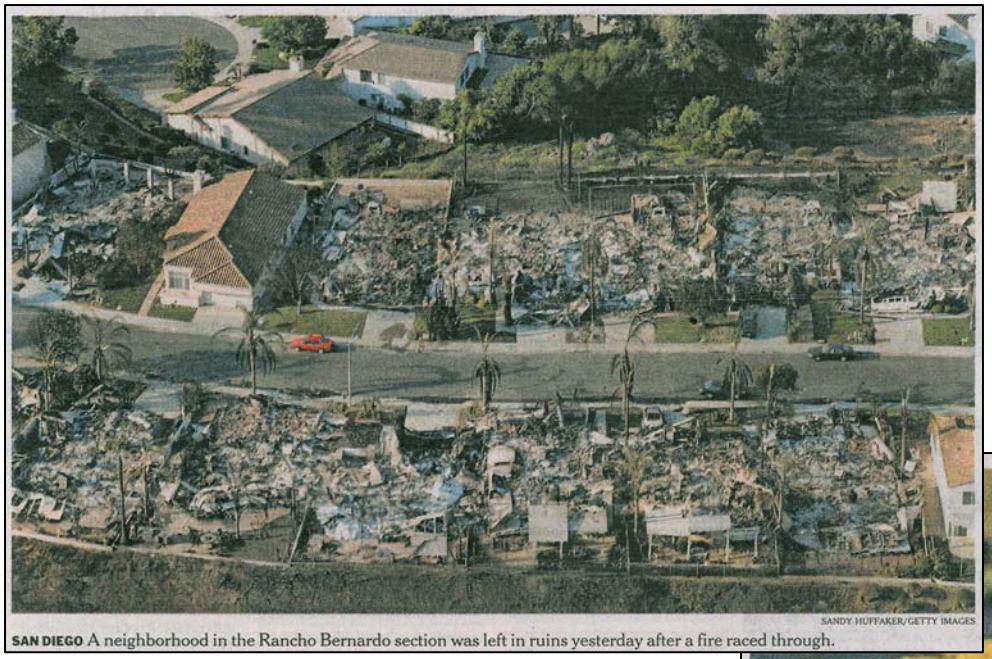
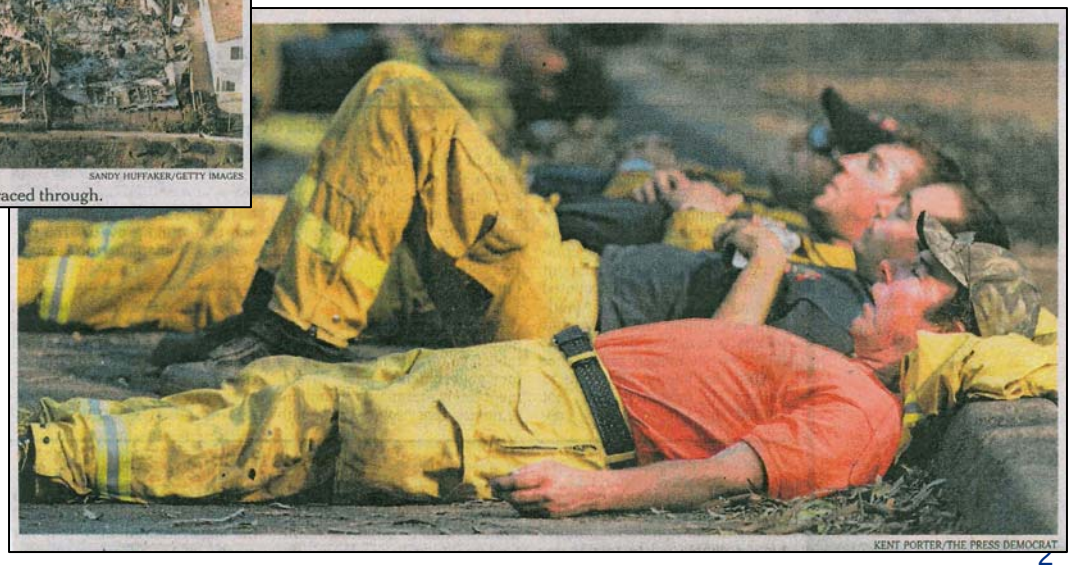




SANDY HUFFAKER/GETTY IMAGES

SAN DIEGO A neighborhood in the Rancho Bernardo section was left in ruins yesterday after a fire raced through.



KENT PORTER/THE PRESS DEMOCRAT

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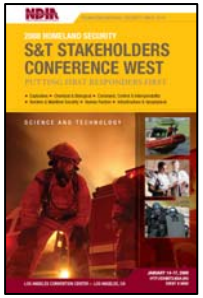
Secure Against Fires and Embers



- DHS Science and Technology (SAFE Team)
  - Infrastructure and Geophysical Division
  - TechSolutions
  - Office of National Laboratories
- DHS Wildfire response elements
  - FEMA
  - US Fire Administration
- Other Federal technology assets
  - DOE National Laboratories / S&T Laboratories
  - TSWG
  - NIST
  - US Forest Service

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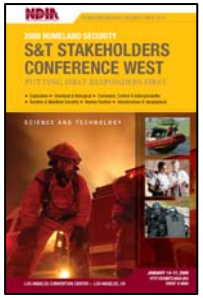
Southern California Wildfires



- Unlike 2003 wildfires, with 13 fires in 8 days; 2007 23 fires in 24 hours
- Urban conflagration problem
  - rapid fire spread between buildings
- Building code changes after 2003 fires taking effect January 2008
- Seven counties covered under the Governor's Proclamation
- Presidential Declaration FEMA-1721-DR
- Largest mass evacuation in California history.

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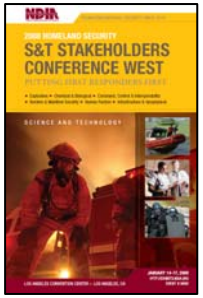
Current Protection Technologies



Foams and gels

- Rely upon water entrapment for thermal protection
- Break down in extreme heat
- Not always easy to apply
- Can wash off due to rain
- Fire trucks can carry enough for one structure only

Building Shelters

- Labor and time intensive

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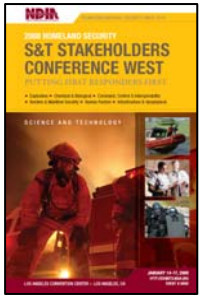
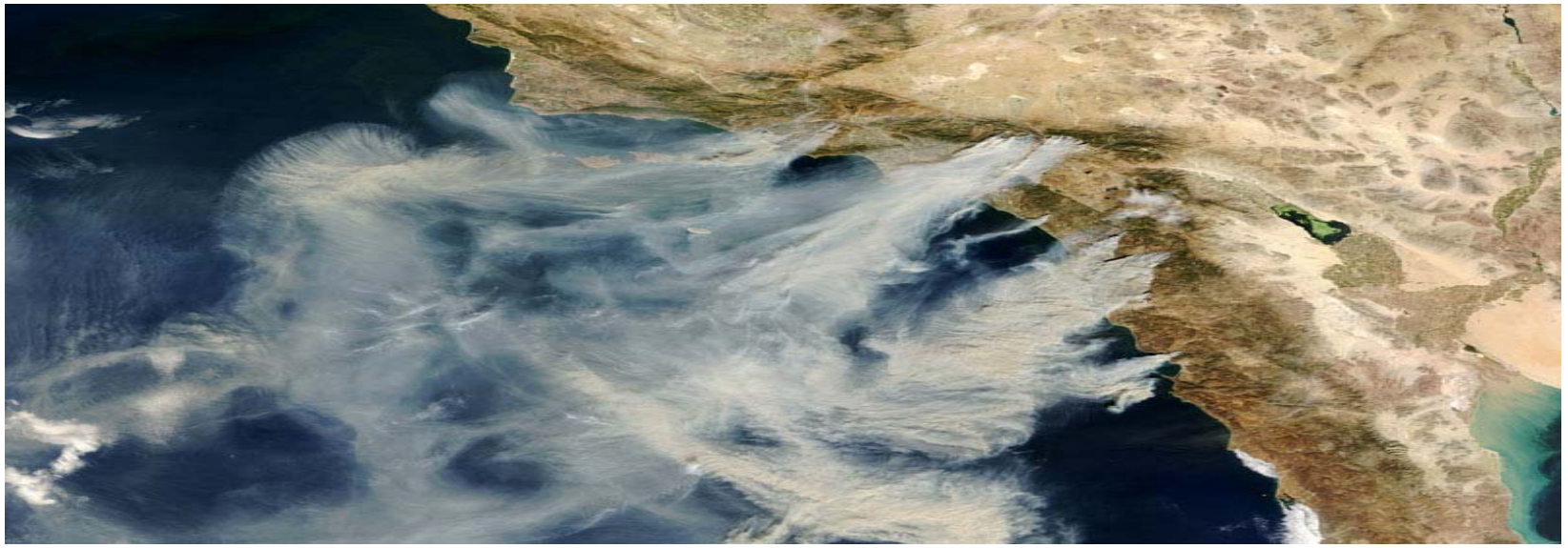
Fact Finding Mission (November 1-2)



- California State Operations Center, Sacramento
- Joint Field Office, Pasadena
- Multi-agency Coordination Center, Riverside
- Santiago Fire, Orange County



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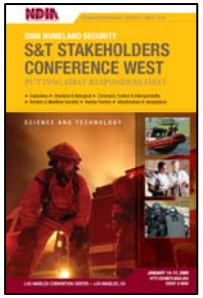
Preliminary Findings



- Improve practicality, logistical requirements, and affordability of protection technologies
- Develop low cost systems to protect legacy homes
- Need to improve situational awareness and accountability across levels of government and between disciplines
- Need for an ember test facility that can reproduce comparable winds
- Research in expeditious erosion mitigation science and technology to prevent cascading disasters

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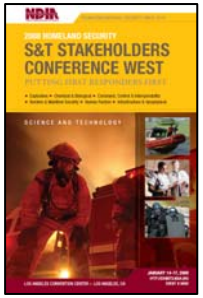

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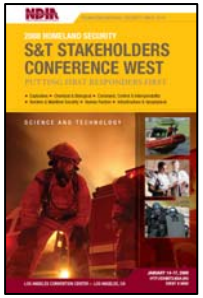
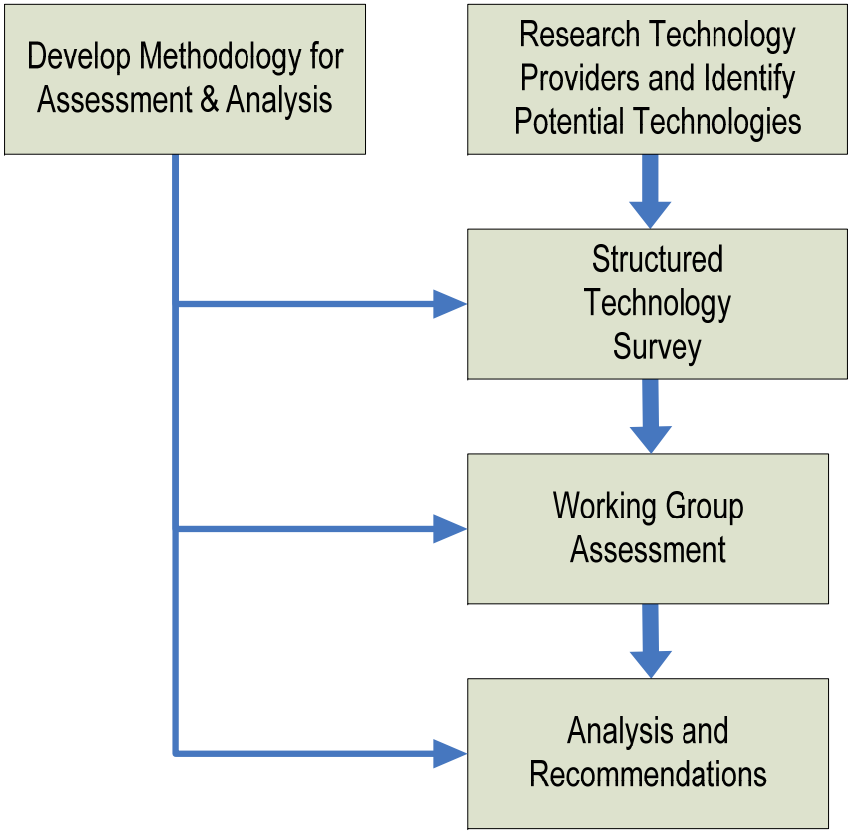
HSI Analysis of Potential Technologies



Overall Objective: To provide analytic support for S&T Project SAFE Working Group

- **Technology Survey:** HSI to describe technology by specific analytic categories
- **Working Group Assessment:** HSI to build assessment tools (organized by survey category) to assist the Working Group's assessment of technologies
- **Analysis and Recommendations:** Based on Working Group assessments HSI to create assessments, analyses and recommendations for support of technologies



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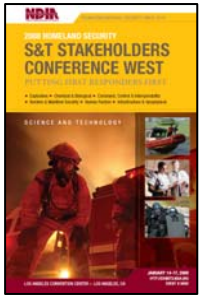
HSI

Technology Survey: Schematic of Categorization & Assessment



- **Mission Phase:**
  - Prevent
  - Protect
  - Respond
  - Recover
  - Information Sharing

Technology Survey will also categorize by self-reported criteria that will subsequently be evaluated by the Project SAFE Working Group. Examples are technology maturity (TRL), anticipated cost, deployment feasibility, schedule to deployment.

- **Fire Functions:**
  - Sensors & Surveillance
  - Remote Imagery
  - Fire Detection & Monitoring
  - Urban Codes/Zoning
  - Structure Protection
  - Evacuation & Rescue
  - Fire Fighting Equipment
  - Responder Safety
  - Equipment Testing
  - Post Fire Remediation
  - Post Fire Analysis & Lessons Learned
  - Situation Awareness/COP
  - Command & Control
  - Planning/Fire Behavior Modeling

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