

Empowering Homeowner Action for Fire-Safe Structures

The urban–wildland interface (UWI) presents a special problem in the vulnerability of structures to fires that develop in wildlands or other nearby vegetation. The loss of structures to UWI fire is a regular occurrence in the United States. For example, more than 4,000 houses were lost in southern California fires in 2003.

The causes of these losses are complex, involving the interactions of

- fire weather, typically in early fall,
- flammable vegetation, both distant from and near structures, and
- the structures themselves.

Of particular concern is the movement toward banning or limiting wood-based materials as part of the housing envelope. Previous research indicates that wood-based materials perform very well in this fire scenario provided that appropriate construction techniques are used.

Background

A substantial amount of information is available for homeowners to survey their parcels and buildings,

make short-term changes, and plan longer-term approaches to reduce vulnerability to fire damage. Much basic information was developed in a previous project funded by the Federal Emergency Management

Agency. However, this information is not available in a consolidated form, and no organization has presented the information in an authoritative manner or developed a means of supplementing and modifying the information as developments occur. The information is suitable to a national audience.

Objective

The objective of this program is to provide information in a form that enables homeowners to identify priority actions to reduce fire hazards. Priorities for longer term and more expensive hazard mitigation must be clearly presented to permit homeowners to incrementally reduce vulnerability to ignition or penetration. Preparations for the fire season and appropriate response to a reported fire must also be clearly presented. The program will also provide architects and builders with design and materials information to reduce losses to structures.



Fire damage to a housing subdivision in San Diego, California.

Approach

The basic approach of the program is to consolidate information from multiple sources (California Department of Forestry, University of California Forest Products Laboratory, USDA Forest Service, and others) to develop a “checklist” of vulnerable features of a parcel.

- In cooperation with local fire district, develop weighting for each checklist item
- Do on-site assessments of representative parcels that have a variety of characteristics and collect photographic models to show mitigation techniques
- From assessments, update checklist and weightings
- Develop “quick response package” for homeowners to use in preparation for fire season and in response to fire threat
- In cooperation with the USDA Forest Products Laboratory, create web-based research tool for interactive analysis of checklist outputs to provide priority ranking of short- and long-term actions by homeowner

Expected Outcomes

The outcomes will include information for Fire-Safe Councils to distribute to homeowner organizations, a web-based system to enable homeowners to understand the limitations of materials and best practices, and

an interactive CD to permit homeowners to assess their parcels and buildings to make them more fire-safe. Other outcomes will be technology transfer presentations to groups representing architects and builders and publications of research results.

Timeline

Consolidating information from previous studies began mid-2004. Drafting of the CD text and accumulation of photos is underway and should be completed by early 2005. The CD (and web page accompaniment) will be beta-tested in 2005 and finalized in 2006.

Cooperators

USDA Forest Service, Forest Products Laboratory
Office of the State Fire Marshal, State of California
San Diego Fire-Rescue Department
Moraga-Orinda Fire District

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