



## THE FIRE ENVIRONMENT

The "fire environment" is defined as the "surrounding conditions, influences and modifying forces that determine wildfire behavior." Firefighters recognize three components of the fire environment: weather, topography and fuel. Together, these three components affect the likelihood of a fire start, speed and direction at which a wildfire will travel, intensity at which a wildfire burns, and the ability to control and extinguish a wildfire. Although weather and topography cannot be changed, the fuels (or vegetation) can be modified.

**WEATHER:** Dry, hot and windy weather increases the likelihood of a major wildfire. These conditions make ignition easier, allow fuels to burn more rapidly, and increases fire intensity. High wind speeds, in particular, can transform a small, easily controllable fire into a catastrophic event in a matter of minutes.

**TOPOGRAPHY:** Of all the topographic features, the steepness of slope is among the most influential on fire behavior. As the steepness of the slope increases, a fire will spread faster. Other important topographic features include aspect, south and southwest slopes usually have more fires, and chimneys (steep, narrow drainages) can significantly increase the rate of fire spread.

**FUEL:** Fuel is required for any fire to burn. With regards to wildfires, fuels almost always consist of living vegetation (trees, shrubs, grass and wildflowers) and dead plant material (dead trees, dried grass, fallen branches, pine needles, etc.). Houses, when involved in a wildfire, become a source of fuel. The amount, size, moisture content, arrangement and other fuel characteristics influence ease of ignition, rate of fire spread, length of flames produced and other fire behaviors.

**HUMAN ENVIRONMENT:** When people are living in high fire hazard environments, the human built environment becomes an important factor in predicting the loss of life and property. Untreated wood shake and shingle roofs, narrow roads, limited access, lack of fire-wise landscaping, inadequate water supplies and poorly planned subdivisions are examples of increased risk to people living with the threat of wildfire.