

United States
Department
of Agriculture

Forest Service



GENERAL INFORMATION ON FIRE SHELTERS -JULY 12, 2001

- All firefighters and others going to the fireline are required to carry a fire shelter at all times.
- Firefighters learn to use their fire shelters as part of their basic training, and they practice shelter deployments during ongoing refresher training and tailgate safety sessions.
- Fire shelters have saved the lives of more than 250 firefighters, and prevented hundreds of serious injuries and illnesses from burns and smoke inhalation.
- Shelters will not protect firefighters under all fire situations. The shelter is a last resort, a measure firefighters can take if their planned escape routes or safety zones become inadequate or entrapment is imminent.
- The fire shelter saves lives by 1) reflecting radiant heat and by 2) trapping breathable air to protect airways and lungs from flames and hot gases, which are the two leading killers in an entrapment.
- Fire shelters are designed to protect firefighters from radiant heat and smoke, in a situation where there are no other options. For this purpose, the fire shelters are very effective. They do what they are designed to do!
- The Missoula Technology and Development Center (MTDC) is in the process of developing tests for several new fire shelter designs. If and when a new specification is approved for a new fire shelter, design, contracting and manufacturing may take more than a year. Some of the considerations for new designs include weight of the shelter, ease of deployment, toxicity level of materials when they get hot, and ability to deflect radiant heat. *New shelters are not being developed as a result of the 30-Mile Fire fatalities. The redesigns and testing process has been underway for some time.*

Fire Shelter Tidbits

- With prolonged exposure, temperatures inside a shelter can exceed 150 degrees Fahrenheit. Firefighters can survive such temperatures - dry saunas often reach 190 degrees Fahrenheit.
- The fire shelter is not designed to withstand direct flames. It should be deployed well away from natural fuels and flammable equipment.
- The shelter is made of aluminum foil bonded to fiberglass cloth with a non-toxic, high temperature adhesive. These are the best lightweight materials available for maintaining structural integrity in extreme heat and high wind.

- The pup tent shape allows you to lie flat against the ground, thereby exposing less of one's body to radiant heat and more to ground cooling. With the face pressed to the ground, one is in the best position to breathe cooler, cleaner air.
- The foil of the fire shelter reflects 95 percent of the flame front's radiant heat. The remaining five percent is absorbed, gradually making it hotter inside the shelter.
- When the fire shelter reaches about 475 degrees Fahrenheit, the glue that bonds the aluminum to the fiberglass cloth breaks down and the layers separate. At 1200 degrees Fahrenheit, the aluminum melts. Temperatures of the flames in a wildland fire average 1600 degrees Fahrenheit.
- Seconds are critical during shelter deployments. With practice, most firefighters can deploy the shelter in about 20 seconds.

2001 Fire Shelter Pull-Tab Defect Information

- In April 2001, the California Department of Forestry found a defect in the packaging of fire shelters, in which the red pull tabs would break off before the clear plastic case covering the shelter could be completely unzipped. A recall was issued for about 44,000 fire shelters manufactured under a specific GSA contract.
- Meanwhile, equipment specialists with the U.S. Forest Service Missoula Technology and Development Center (MTDC) examined a large quantity of fire shelter polyvinyl bags already in service and determined there is a significant failure rate with fire shelter pull tabs regardless of manufacturer or date of production.
- As an interim-interagency measure, MTDC has approved the issue and use of fire shelters with defective polyvinyl cases if the following modification is performed:
 - Remove the fire shelter from the hard plastic case;
 - Pull the tabs half way down on each side of the polyvinyl bag.
 - Re-insert the shelter in to the hard case.