

There are two main phenomena which occur when large fires are expanding; one is flashover, the other is flash fire, and most often, they occur in combination.

### Flash fire

Flash fire is the burning of combustible gases. Flash fire occurs when materials in a localized area burn, and emit combustible gases. The combustible gases, a result of incomplete combustion, accumulate until they reach a flammable limit and will, if there is a source of ignition, ignite. The resultant fire will propagate rapidly, usually at the ceiling where the combustible gases have collected. Conditions inside the cabin will become nonsurvivable within a matter of seconds. Since flash fire is dependent on the concentration of heat and combustible gases in the upper levels of a cabin, airflow through the cabin would reduce the build-up of these gases by dispersing and venting some of the products overboard.

### Flashover

Flashover in an airplane cabin environment occurs when enough heat has built up along the ceiling so that the radiant flux down to the materials below the heat layer reaches a level that is high enough to cause an almost instantaneous ignition of the material. FAA research has indicated that flashover produces nonsurvivable conditions throughout the cabin within a matter of seconds.