

# Computer Models For Fire and Smoke

*Model Name:* CFIRE-X

*Very Short Description:* A zone model for compartment fires, especially for liquid hydrocarbon pool fires.

*Modelers, Organizations:* BATTELLE INSTITUTE, F.R. of Germany and SINTEF, Norway

*References:* Modelluntersuchung von Kohlenwasserstoffbränden-Phase III: Weiterentwicklung eines Zonemodells. Batelle Euope e. V.BF-R-gg.829-4, Frankfurt am Main, Germany.

*Availability:* RESTRICTED. Copyright by BATTELLE Institute and The F.R. of Germany; The Ministry of Research and Technology.

*Hardware:* Standard FORTRAN Compiler

*Language:* FORTRAN 77. NO special options are in use.

*Size:* Approximately 512 kB

*Detailed Description:*

CFIRE-X is a two-zone model. The code has options for three fire sources; a jet burner (point source), a pool burner and combustible objects. The pool burner algorithm is based on heat interaction between the fuel slab and the total heat exposure to the fuel depending on fuel properties and geometry. Combustible objects are treated as heat sinks or heat sources depending on ignition or not. The ignition is based on an ignition temperature. The ventilation of the compartment may be natural or forced by multiple vents. The heat absorption in walls is detached by ceiling, floor and walls. CFIRE-X gives values for the heat release, temperatures, gas flows and to some degree, gas components.

*Limitation:*

Single room environment only.