Computer Models
For
Fire and Smoke

Model Name:	ASET-B (Available Safe Egress Time – Basic)
Version:	1.0
Classification:	Zone Model
Very Short Description:	A simple, user-friendly, one-room smoke-filling zone fire model which predicts the smoke layer thickness and temperature due to a fire of time-dependent, user-specified, energy release-rate; and solves the same fundamental equations of the ASET model.
Modeler, Organization:	W.D. Walton, Building and Fire Research Laboratory, National Institute of Standards and Technology.
References:	Walton, W.D., ASET-B: A Room Fire Program for Personal Computers, NBSIR 85-3144-1, National institute of Standards and Technology (formerly National Bureau of Standards), Gaithersburg, MD, 1985. Cooper, L.Y., "A Mathematical Model for Estimating Available Safe Egress Time in Fires", *Fire and Materials*, Vol. 6, pp. 135-144, 1982. Cooper, L.Y. and Stroup, D., "ASET-A Computer Program for Calculating Available Safe Egress Time in Fires", *Fire Safety Journal*, Vol. 9, pp. 29-45, 1985. ASET-B: A Room Fire Program for Personal Computers, *Fire Technology*, Vol. 21 (4), 293-309, Nov. 1985.
Availability:	Source code listed in Reference 1, above. Source code and executable program available from http:fire.nist.gov.
Price:	There is no cost from NIST for the download.

Necessary Hardware: The executable program runs on an IBM PC or compatible computer that supports DOS. The source code compiles on a computer that supports BASIC.

Computer Language: BASIC.

Size: 64K RAM.

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Detailed Description:

ASET-B is simple, user-friendly, one-room zone fire model which predicts the smoke layer thickness and temperature due to a fire of time-dependent, user-specified, energy release rate. ASET-B solves the same fundamental equations as the ASET model, although it uses a different solution technique . The program is supported by the user's guide of reference 1. The ASET-B input data include the height and area of the room, the elevation of the fire above the floor, and a heat loss factor. ASET-B models the fire growth rate by using pairs of user-specified data points (energy generation rate, time) with linear interpolation between them.