Computer Models
For
Fire and Smoke

Model Name:	WayOut
Version:	3.5
Classification:	Evacuation model
Very Short Description:	Evacuation model for merging pedestrian traffic from multi-room and multi-storey buildings
Modeller(s), Organization(s):	Victor O. Shestopal, Fire Modelling & Computing, Sydney, Australia
User's Guide:	Manual accompanies the software
Technical and Validation References:	"Evacuation model for merging traffic flows in multi-room and multi-storey buildings". Fire Safety Science - Proceedings of the 4-th International Symposium, IAFSS, Ottawa, Ont., 1994, p. 625-632.
Availability:	Available from Fire Modelling & Computing (see http://www.mpx.com.au/~firecomp)
Price:	Negotiable
Necessary Hardware:	IBM PC, Windows 95, NT and higher
Computer Language:	C
Size:	Approximately 600 kB (the entire package of 18 programs)
Contact Information:	Victor Shestopal, +61 2 9487 4858, firecomp@mpx.com.au
Detailed Description:	

WayOut is one of 18 programs of the Fire Engineering software package FireWind.

The model is based on the experimental data of dependence of the velocity of pedestrian traffic on the density of traffic flow, as it is disclosed in book by V.M. Predtechenskii and A.I. Milinskii "Planning for Foot Traffic Flow in Buildings". Amerind Publishing Company, New Delhi, 1978. The model computes movement time applicably to an average street person in a mid-season dress. The algorithm is built for merging traffic and does not allow for dividing routes. For a situation with multiple exits and dividing routes a user is supposed to divide the evacuation area into "catchments" by "watersheds" on the basis of psychological or other considerations and to compute movement times for each catchment separately. The model assumes that the movement starts at blind ends and in the intermediate rooms movement starts when the first evacuees appear from the blind ends. The model allows for up to 400 "twigs" which represent rooms and parts of the rooms and corridors.

The input of the program is geometrical configuration of the building (length and width of twigs, width of doors) and population numbers per twig. The output is the complete movement time from blind ends and times when each of the twigs is vacated.

The computer implementation utilizes user friendly features of Windows: visualization of the evacuation tree, animation, clipboard saving and printing of computed results, and spread sheet presentation of the output.