

Computer Models For Fire and Smoke

<i>Model Name:</i>	FRAME
<i>Version:</i>	2.0 (1999)
<i>Classification:</i>	Other (Overall fire risk assessment)
<i>Very Short Description:</i>	A calculation system to evaluate the balance between the potential risk factors and the available or required protection.
<i>Modeler(s), Organization(s):</i>	Erik De Smet
<i>User's Guide:</i>	FRAME: Handbook for the use of this Fire Risk Assessment Method for Engineering. 1999 Edition. Summaries also in Dutch, French, German, Spanish
<i>Technical References:</i>	Handbook.
<i>Validation References:</i>	Numerous practical applications (not publicized)
<i>Availability:</i>	Through the author. For more details, please visit the web site: http://user.online.be/~otr034926/
<i>Price:</i>	50 Euro (single language) 15 Euro per extra language + shipping costs
<i>Necessary Hardware:</i>	Any PC, that runs under Windows 3.1, 95, 98
<i>Computer Language:</i>	C++
<i>Size:</i>	approximately 1 MB
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<i>Detailed Description:</i>	

FRAME is a comprehensive and practical calculation method for fire risks in buildings. It is a tool to define a sufficient and cost effective fire safety concept for new or existing buildings.

It was developed from the GREENER-method proposed in Switzerland in the early sixties, and from various other similar approaches. The method is based on statistical data, empirical formulas and the professional experience of a large group of experts. Already in use for more than 20 years, it has been thoroughly tested on real case studies.

The basic assumptions are that, in a well-protected building, an equilibrium exists between risk and protection and that representative values can be calculated for the fire risk influence factors and for the available protection techniques. The values are derived from measurable or identifiable data such as building dimensions and construction features, type of occupancy, water supplies, fire brigade organization, etc. The formulas are derived from established engineering data (e.g. the ISO 834 fire curve) or based on statistical information, such as reliability rates of fire protection systems. Each calculation deals with a single level compartment and with three fire scenarios (one for property, one for occupants and one for the activities).

A systematic evaluation is made of all major influence factors and the final result is a set of values which express in numbers, what otherwise has to be said by a long description of positive and negative aspects.

FRAME is aimed at fire protection engineers and can be used for checking existing situations, reducing the influence of subjective appreciation, developing good protection concepts, and for the justification of trade-offs and alternative designs. As it reflects correctly good design practice as well as the balance of influence factors found in the fire codes of most countries in the industrialized world, it provides the “expert opinion” for the less experienced or stand-alone engineer .