

F.R.A.M.E. calculation report

The calculation is made for: Schiphol_Oost

location: Haarlemmermeer

The compartment is: Vleugel_K

The occupancy or use is: cellencomplex

Date of the calculation: 26-10-2005

Version: AS_DESIGNED

CALCULATION of the POTENTIAL RISKS

Data of the compartment :

The fire load 'immobile' Q_i is (in MJ/m²) : 1000.00

The fire load 'mobile' Q_m is (in MJ/m²) : 300.00

This gives for the fire load factor q : 1.53

The temperature rise T in °C is: 250.00

The average dimension m (in meters) is: 0.30

The combustibility class, M is: 2.00

This gives for fire spread factor i : 1.00

The theoretical length l is: 50.00 meter

The equivalent width b is: 17.00 meter

This gives for the area factor g : 0.69

The level number E is: 0.00

This gives for the level factor e : 1.00

The ceiling height h is: 3.00 meter

The flow of the ventilation system is (in Nm³/h): 0.00

The aerodynamic surface of the smoke vents is (in m²): 3.00 m²

The surface of the windows in the roof and upper third of the walls is: 0.00 m²

The smoke venting ratio is: 0.35

This gives for the venting factor v : 1.01

The height difference with the access level is: 0.00 meter

The number of access directions is: 3.00

This gives for access factor z : 1.00

These data give the following results:

The potential risk P for property is: 1.07

The potential risk P1 for the persons is: 1.54

The potential risk P2 for the activities is: 0.70

CALCULATION of the ACCEPTANCE LEVELS

The following elements determine the possibility of starting a fire:

Main activity:

Non industrial activities

Heating systems:

Heat transfer through pulsed air or through oil

Heat generator in a fire separated room

Energy source: electricity, coal, fuel oil

Electrical installations:

In compliance with the rules and regularly checked

Explosion hazards:

No explosion hazard

Secondary activities :

Special hazards (e.g. non-controllable smokers)

This gives for the activation factor a : 0.20

The following elements interfere with the evacuation of the compartment:

The number of persons to evacuate is: 80.00

The number of exit units is: 2.00

The number of exit paths is: 2.00

The mobility factor p is defined as follows:

immobilised persons (patients, elderly)

This gives for evacuation time factor t: 0.47

The following elements define the value of the content:

Replacement factor c1 is: 0.00

The value of the content is estimated at:

0.50 millions EURO

with an inflation correction for 2000 of : 1.00

This gives for content factor c: 0.00

The environment factor r is defined with Qi and M and is: 0.50

The dependency factor d is: 0.30

These data give the following results:

The acceptance level A for the property is: 0.93

The acceptance level A1 for the persons is: 0.43

The acceptance level A2 for the activities is: 1.10

THE ORIENTATION VALUE R_o , The Initial Risk :

The fire resistance of the structure is: 20.00

This gives with the calculated values of P and A, an orientation value R_o of: 0.96

CALCULATION of the PROTECTION LEVELS

The following elements define the value of the water supplies:

Type of storage:

Water storage for general use, automatically filled

There is a shortage of 30 %

Distribution network:

Piping too small for the required flow

Hydrants:

The number of outlets is adequate

Pressure on the network:

The static pressure is adequate

This gives for factor W: 0.77

The following elements define the value of the normal protection :

Notification:

Manual extinguishment means:

Inadequate number or type of extinguishers

Hose stations adequate

Arrival time for the fire brigade:

Arrival after 10 to 15 min.

Training of people:

Only a limited number of persons trained

This gives for factor N: 0.74

The following elements define the value of the special protection :

Type of automatic detection:

Automatic detection by smoke or flame detectors

With electronic supervision of the system

type of special water supplies :

type of special protection:

type of fire brigade:

Small professional public fire brigade + volunteers

This gives for factor S: 2.18

This factor S and the following elements define the value of the fire resistance :

The fire resistance of the structure is: 30.00

The fire resistance of the exterior walls is: 30.00

The fire resistance of the ceiling or roof is: 20.00

The fire resistance of the internal walls is: 20.00

This gives for factor F : 1.23

The following elements define the value of the escape possibilities:

Detection and signalisation:

Automatic detection by smoke or flame detectors

With electronic supervision of the system

Not more than 300 persons to be warned simultaneously

Saveguarding of exit paths:

Protection by:

Small professional public fire brigade + volunteers

This gives for factor U : 2.41

The following elements define the value of the salvage factor :

Protection and organisation:

Immediate restart of activities is possible

This gives for factor Y : 1.16

These data give the following results:

The protection level D for the property is: 1.53

The protection level D1 for the persons is: 1.77

The protection level D2 for the activities is: 1.44

The calculated risk R is for the property: 0.75

The calculated risk R1 is for the persons: 2.03

The calculated risk R2 is for the activities: 0.44