

## Travel to Medieval Belgium!

Last year, to celebrate FPC's 25th anniversary, the entire staff flew off to Lisbon, Portugal, to visit the World Exhibition; a weekend full of fun, sun and delicious food. This year, the cause and venue were slightly different. Instead of flying TAP airlines, the entire FPC team embarked aboard an ordinary Belgian bus and headed towards the relatively unspoiled south-eastern part of Belgium, the Ardennes. It became one of the most splendid business/fun trips, ever organised by FPC. The purpose, of this so-called Team Building Seminar (TBS), was to familiarise new employees with our organisation and to discuss the past, present and future of FPC with the entire team.

### The cocktail for a successful TBS :

Introduce international flavour

Let everybody participate

Book a picturesque hotel

Undertake activities that you would never ever dare to do on your own

Outsource the organisation to a professional company

### The "Business" Day

One of the interesting findings, while discussing the past and present of FPC during the morning session, is that, although most of our turnover is generated on non-American continents, much of our income flow is generated by US based multi-nationals. FPC is now wondering if they should open an office in the USA. In the afternoon, brainstorm sessions were organised to generate ideas about opportunities for FPC. In addition to emphasise on existing clientele and further explore its core-activities, FPC will concentrate in the future on the development of :

- ✓ Interactive Life & Firesafety applications
- ✓ Expertise in consequence and environmental impact studies
- ✓ Project Management Skills to implement firesafety projects from start to finish
- ✓ Alliances with other specialised companies, world-wide
- ✓ Improvement in Quality of Work
- ✓ Performance Based Fire Engineering

The evening was organised around a main theme : the medieval. All dressed in medieval outfits we enjoyed a tremendous evening with good food, wine, dancing and singing. We recall a great performance by our man from Mauritius who gave a completely self-inspired version of Michael Jackson's moonwalk and by our Nigerian manager who sang a beautiful Nigerian tribe-song during sunset.

### The "Fun" Day

After a good, but short, night's sleep, the physical and mental condition of all employees was challenged. We spent the entire day in the woods, hoping and praying that everybody would make it till the end of the day. In addition, knowledge concerning Africa was fundamental for the survival. Between the various «sport» activities, we were to solve questions about the dark continent. It appeared to us that flags, countries and people, all looked very much the same. Concerning the «sport» activities, the remake of the film «Cliff-hanger» came to our minds. Crossing the bridge (that's what they call it, but to us, it was more like rope walking), sliding along ropes above a 30 meter deep ravine, abseiling and cave rock climbing were only some of the activities we had to endure. Our true nature was exposed, and we were not only concerned with our own safety, but the FPC team demonstrated encouragement and support to their colleagues.

**At the end of the three days, the seminar achieved its purpose. We had managed to get the best out of us in some tricky situations and we all felt that the group strengthened its skills and moved toward building up a real team.**

At FPC we can handle any challenging situation.



The new working outfit for FPC's engineers.



There are no easy solutions, only intelligent choices to find your way down.



The "team-builders"



## An introduction to ...



Frank Gyselincx, Firesafety Engineer and Environmental Expert.



Catherine Urso, Fire Protection Engineer.



Thomas Steinhaus, MSc in Fire Protection Engineering.

### Frank Gyselincx,

of Belgium nationality, is a graduate in Chemical Engineering from the University of Brussels. Frank holds two official registrations : Environmental Co-ordinator Level A and recognised expert on Environmental Impact Studies. Frank started his career in 1987 for the Flemish Environmental Administration as an Inspector / Engineer. He then took a position with North Sea Petrochemicals in 1991 as a Process Engineer and became experienced with the petrochemical industry. In 1995 he started at Technip-Benelux as Process Engineer for Environment and Safety. During this time he worked for Borealis, Exxon Chemicals and Fina Refinery Antwerp.

### Charlotte van Paassen,

of Dutch nationality, holds a Business Administration degree. She started her career in 1989 with C&A as a Store Manager, followed by Marketing Manager in the Netherlands, UK and Germany. In 1996 she joined Randstad Zeitarbeit in Germany where she worked as a District Manager. Later on, she moved to Belgium where she also worked as a District Manager for a recruitment agency.



Charlotte van Paassen, Human Resources & Finance Manager.

### Catherine Urso,

of French nationality, holds a Bachelor degree in Building Management and Fire Engineering (University of Central Lancashire). She lectured, for over 7 years, at the University of Central Lancashire, Preston, UK, in construction and engineering. The last 2 year she has worked as a Contract Administrator in the oil & gas and electromechanical sector in Leipzig, Germany and in Istanbul, Turkey.

### Bart Van Laer,

of Belgium nationality, holds a technical degree in electronics. Bart has more than 10 years experience as a designer. He has worked for two major companies : Philips Lightning and the nuclear power station in Doel (B). Bart started with FPC in the CAD-Department. He is very proficient on Autocad, CADPIPE and on Microstation.



Bart Van Laer, Fire Protection Designer.

### Thomas Steinhaus,

of German nationality, is «Diplom Ingenieur» in Mechanical Engineering and one of the few Europeans who holds a Master of Science degree in Fire Protection Engineering from the University of Maryland (USA). During the fire protection engineering program, Thomas was in charge of the FIST Project (Forced flow Ignition and flame Spread Test). His objective was to develop a flammability testing protocol for micro-gravity environments, to be used by NASA on the International Space Station, while his studies focused on advanced fire modelling and performance based fire protection engineering.

### FPC Company Presentation on CD-ROM

Last year FPC created a new company brochure. With the development of F.I.R.E.S™ (Fire Initiated Response and Emergency Scenarios; see Schiphol Article and Trends number 15), the brochure alone might not be sufficient any longer. With our company presentation on CD-ROM, we are in a position to inform you about the services and domains of FPC far more in depth. In addition, FPC complements the company presentation CD-ROM with demos of F.I.R.E.S™. This allows the viewer to visualise a complete scenario, which is necessary to appreciate the full potential of F.I.R.E.S™. Should you require any information, please contact us.



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## F.I.R.E.S™ at Schiphol International Airport, the Netherlands

### E D I T O R

The summer holidays are over. As a warming-up to return back to real life, we would like to encourage all of you with Trends 17. Some exciting and challenging articles are presented in this edition. The main article features the development of a Life and Firesafety Management System for the International Airport of Amsterdam, Schiphol. FPC has now finalised this project under the flag of F.I.R.E.S™ and we found it appropriate to introduce this product to a broader market. Inside this issue, we demonstrate how the system operates.

Recently, the FPC staff (including some of our overseas colleagues) enjoyed the dreadful experiences of a Team Building Seminar. Check out «Travel to Medieval Belgium» and take part in the event in which the entire team has proved their courage, their physical and mental condition.

FPC has grown and new, «international», faces have joined the team. In this release, you as well, will meet them.

We are also very proud to announce that FPC's company presentation is now available on CD-ROM. If you are interested, please do contact FPC and the CD-ROM will be on its way !

In the next issue of Trends, an article of FPC's partner, the Risk Management Research Institute (RMRI) in Manchester, UK, will be published on how cost effective Risk Analysis leads to cost effective Asset Management.

Enjoy reading our Trends 17 !!

Schiphol International Airport in the Netherlands is presently one of the foremost important airports in Europe. Well-known to offer its passengers a combination of tranquillity and activity, Schiphol is now also creating a safer environment for travellers, staff and contractors. This decision, driven by recent incidents at other airports, is put into practice by the provision of an increasing amount of safety systems throughout the entire terminal complex. Less visible to passengers, but of equal importance, is the go ahead given by management for the development of *State-of-the-Art Emergency and Intervention Plans*.

Rather than investing into another range of binders with static procedures and lay-out plans, Schiphol opted for FPC's Expert Lifesafety Management System F.I.R.E.S™. It is Schiphol's consideration that an intelligent, flexible and dynamic system is the only way to capture and deal with the complexities that exist at airports' during an emergency situation. F.I.R.E.S™ is indeed capable of translating these complexities into an interactive system that can be used to control and manage a wide range of incidents. It incorporates the five crucial components to which every State-of-the-Art emergency response system should adhere to : pre-designed decision-making, time profit, concise information transfer, information logging and proper staff training.

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- ✓Complexities with respect to lifesafety :
- ✓airport terminals are large open spaces (isolation of incidents is difficult)
- ✓high security level (evacuation and security can work contra-productive during an emergency)
- ✓a wide range of hazardous areas/scenarios (difficult to determine evacuation zones)
- ✓thousands of people residing in an extended area (difficult to direct passengers to pre-determined locations).



**Pre-designed decision making**

The purpose is to think ahead and determine how an incident can evolve and what according measures are necessary to increase the chance of a successful emergency intervention.

Organising brainstorm sessions with all parties involved, defining different risk areas, modelling incident scenarios in advance and developing event trees and evacuation strategies are ways by which FPC has accomplished this task at Schiphol. One of the interesting conclusions is that the evacuation of passengers through borders/customs is not a preferred option. Besides the fact that border crossings do not qualify as good escape routes, a lateral evacuation (staying on one side of the border) has numerous advantages:

- ✓ the incident can be isolated on one side of the border (shut down of barriers)
- ✓ counter flows with passengers queuing at one side of the border is prevented
- ✓ a higher flow of people and better directions can be given when sending passengers through wide corridors that interconnect individual terminals
- ✓ evacuation and security objectives are not conflicting.

**Time Profit** This is accomplished by translating all

the scenarios and event trees into an Interactive Computer System. No time is lost, everything is presented directly on the computer screen during the course of the incident. Dynamic lay-out maps can be retrieved electronically together with the area and incident specific strategies. The computer directly updates actions when incident parameters are changing. The bottom line is that there is no need to start looking for procedures/lay-out plans, these just pop-up on the computer screen based on the selected scenario and location of the incident.

**Concise Information Transfer** All information

is filtered by a d-base system, as such there is no overkill in information transfer. Only the necessary information is presented with regard to the scenario, location and stage of the incident. The system runs inside the central control room and guides the co-ordinator through the emergency by asking simple yes/no questions. Feed-back from the scene about the incident status is communicated to the control room by specially trained intervention teams.

**Information Logging** A log-system is highly desirable

to trace the cause and the evolution of an incident. It is beneficial to be able to investigate how things can be improved in the future and inquire which areas are more often affected by incidents than others. In addition, the log-system can even be used for litigation purposes.

**Training** F.I.R.E.S™ is an excellent system to train a

large group of people. The interactivity also makes training exercises attractive to individuals (educational instrument) while the log-system can serve as a control function for management.

**Advantages**

- ✓ The system transfers complex information into a format and logic that is easy to use during a real time emergency and for staff training purposes.
- ✓ It is a tailored-made decision and management system to control a wide range of incidents.
- ✓ It is a dynamic and intelligent system that is able to adapt to changing conditions that can occur during an incident.
- ✓ Navigation throughout the terminal : smoke, or for instance a terrorist, can be traced and the necessary actions to stay ahead of a potential danger are presented.
- ✓ F.I.R.E.S™ minimises the risk of human and technical errors.
- ✓ Incident and evacuation criteria are developed in advance to facilitate decision-making during stress situations. The system informs the incident commander when, where and how to evacuate and what according actions are required.

**Additions**

- ✓ Electronic data transfer to intervention teams (actions/lay-out plan/target times/positions at the scene) and provision of hi-tech communication media.
- ✓ Automatic start up of the system based upon digital incoming signals.
- ✓ Development of scenarios and intervention strategies for crash tenders.
- ✓ Automatic generation of decisions based upon changes in environmental factors (Artificial Intelligence).
- ✓ Signal capturing to lighten-up scenario based evacuation routes.
- ✓ The system can be extended to indicate relief areas for passengers.
- ✓ Connection of scenario and area specific messages to the terminal voice communication system.

Companies who are interested in obtaining a demo of the CD-ROM in English are urged to send a message to the FPC office in Belgium.

Scenario Selection Screen



- Credible accident scenarios are :
- ✓ Fire (digital/non-digital)
  - ✓ Bomb threat
  - ✓ Force of nature
  - ✓ Terrorist action
  - ✓ Tunnel incident.

Apart from a tunnel incident, all other scenarios can occur anywhere inside the terminal complex or at an embarked aeroplane.

Sector Selection Screen



The entire terminal complex is subdivided in 12 sectors. This allows for a first order location of the incident. Sectors are chosen in a way that they can be compartmentalised from one another during an incident.

Floor and Zone Selection Screen



Every sector is subdivided into different floor levels and incident zones. All zones are labelled so they can be uniformly recognised by all parties. A clear distinction is made between public areas on land- and airside, offices and technical areas. This is important since the affected zone will determine the size of the area that needs to be evacuated.

Action Screen 1

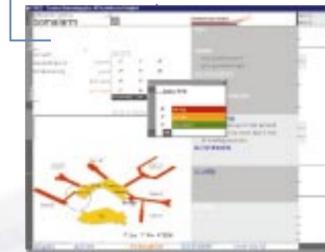
The computer prompts the incident commander to undertake prioritised actions. The four intervention teams (first intervention team, police, fire brigade and medical team) and their respective statuses are presented.



The two dynamic scenario parameters that determine the alarm mode and the according notification of intervention teams are : Fire and Casualties. These parameters have several sub-statuses that influence the alarm mode, the magnitude of evacuation and the statuses of the respective intervention teams.

Action Screen 2

For other scenarios, the dynamic parameters differ. In case of a bomb threat, result of bomb-analyses and expected number of casualties are the two driving parameters that generate alarm modes and trigger intervention parties. At the left side of the screen, a summary of the



incident is maintained and the alarm mode of the airside operation manager is cross-checked. At all times, extra information can be recorded into the applicable data box.

Action Screen 3

Modifications to dynamic parameters due to a change in the initial incident conditions is reflected by

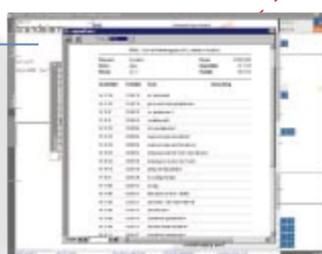


an automatic upgrade of the alarm mode. The status of several technical systems and response times of intervention teams are recorded on the screen. The start, the absolute time and delta time is shown throughout the entire scenario. On every screen, standard buttons are provided (at the bottom) to navigate from the action to the evacuation screen and vice versa.

# Launch of FPC's Lifesafety Management System for Airport Terminals

*"We hope the landing will be safe"*

Log Screen



All mouse clicks are logged. This includes arrival and response times of intervention teams, decisions of the emergency co-ordinator and data that has been entered into the data box. The log systems can be used by management to follow-up training courses and analyse decisions taken during the incident for further improvement.

Action Screen 4



Shows the conditions under which intervention teams can be withdrawn at the end of an incident. The dynamic scenario parameters are brought back to their initial status and intervention teams are re-treated.

Search and Rescue Screen



In large open spaces, small areas, such as toilets and lifts, are often overlooked during an evacuation. Therefore a special button is provided to highlight these areas in each zone.

Evacuation Screen 2



The expansion of the incident to other areas is made possible by an intelligent navigation instrument that allows surfing through the entire terminal whenever isolating the incident in an adjacent zone has failed. At the bottom of the screen, a toolbox is created that gives the intervention teams technical means to implement the posted strategy.

Evacuation Screen 1

This screen presents the zone layout and the applicable evacuation and intervention strategy for this scenario. Safe escape routes and exits to direct the flow of people are indicated.

Specifications are given where and how the incident can be restricted to a zone and where the flow of people towards this zone should be stopped. Whenever there is a potential for rapid incident spread to higher/lower floor levels or an adjacent zone, these are evacuated at the same time. Since in this case three floor levels are communicating with one another by means of large open spaces, the levels are red coloured in the 3D-navigation model.

