

RISK CONSULTING

IF'S RISK MANAGEMENT JOURNAL 1/2014



The cheese saving
operation after
superstorm Sandy

Extending risk
management to
resilience

Fazer: Risk
management in
focus

A large, high-contrast image of a firefighter in silhouette, wearing a helmet and holding a hose, set against a background of intense orange and yellow flames. The firefighter is positioned on the left side of the frame, facing right.

**A new If Study:
Risks
with PIR
panels**

Bringing new insights to clients

EXPERTISE, QUALITY AND proximity to the customer are some of If's watchwords for all our areas and particularly for the industrial segment.

A focus on learning and development is essential when these goals are to be achieved. That allows us to bring new knowledge and information to our customers and partners.

To cite a good example of this, If recently commissioned fire tests on so called sandwich panels, a building component that is used for roofs and walls. We compared two types of panels – one with a stone wool insulating core, the other with a plastic foam core. The reason for If's involvement and interest in the tests is that some types of plastic panels have been approved in fire tests and are frequently used by our customers. Polyisocyanurate (PIR) panels are a type of plastic panels that have a top-class fire rating, thus they were chosen for the tests.

WE HAVE ENCOUNTERED plastic panels in a number of fires during the latest years.

A number of customers' properties, which incorporate plastic panels, have been damaged by these fires. In some cases, the damage was extensive.

If's tests have been conducted in co-operation with several universities. They show a significant difference in fire performance between the stone wool panels and the PIR panels.

The tests were based on traditional fire tests, but certain changes were made to reflect conditions experienced by If in real life fires. For instance, the fire was allowed to continue for longer and the walls of the property where the tests were being conducted had screw holes, wiring and other in-wall features. You can find details about the design and performance of these tests in the magazine.

If will now be presenting this new information to customers and partners so as to help reduce the risks and contribute to the improvement of conditions for businesses.

NICLAS WARD,
Head of Business Area Industrial



If P&C Insurance, contact information

Finland +358 10 19 15 15 **Sweden** +46 771 43 00 00 **Norway** +47 98 00 24 00 **Denmark** +45 7012 24 24 **France and Luxembourg** +33 1 42 86 00 64 **Germany** +49 6102 710 70 **The Netherlands and Belgium** +31 10 201 00 50 **Great Britain** +44 20 7984 7600 **Estonia** +372 6 671 100 **Latvia** +371 7 094 777 **Lithuania** +370 5 210 9800 **Russia** +7 812 313 51 46
www.if-insurance.com



04 Small particles, big worries

Nanotechnology is providing new opportunities but also great uncertainty.

06 Client: Fazer

Top level focus on risk management.

08 Potential risks with PIR panels

A new If study.

16 Under-insurance

Losses affected by under-insurance are on the rise.

18 Lessons from losses

The Valio cheese saving operation was a major success.



22 Client: Holmen

Holmen's best tips to prevent claims.

25 Resilience

Extending risk management to resilience.

28 Business continuity planning

If experts give advice.

31 News

Stora Enso: Back to business in record time.

31 Appointments



Future top 5 risks

EXTREME WEATHER EVENTS. Climate change. Cyber-attacks. Mounting rates of unemployment and under-employment. Growing income disparities. These are the top five risks that corporations and governments will be facing the coming ten years, according to the Global Risks 2014 report from the World Economic Forum. "Each risk considered in this report holds

the potential for failure on a global scale; however, it is their interconnected nature that makes their negative implications so pronounced as together they can have an augmented effect," said Jennifer Blanke, Chief Economist at the World Economic Forum. The report can be read in full at <http://reports.weforum.org/global-risks-2014>.

Less natural catastrophe losses

Losses from natural catastrophes 2013 were below the average figure for the last years, according to Munich Re, despite exceptionally high losses from weather-related catastrophes in Europe and in the Philippines. The most severe event in human terms was typhoon Haiyan that killed over 6 000 people in the Philippines. Haiyan is said to have been the strongest tropical storm ever to make landfall.

86 per cent of the respondents in a Strategic-Risk survey says board engagement in risk management questions has increased over the past five years.

Flooding costs

The cost of flood damage is set to rise nearly fivefold in Europe by 2050, according to a study from VU University in Amsterdam, Netherlands. Two thirds of the increase is caused by claims on buildings built in flooding prone areas. 21 per cent of new homes built in London since 2010 are in high-risk areas, The Economist reports.

"Cybergeddon"

The new buzzword that describes a future in which cyber attackers – whether hackers, organized-crime groups or national militaries – have an overwhelming and lasting advantage over defenders, obliterating the Internet as a trusted medium for communication or commerce.

Nano

Small particles, big worries

Nanotechnology is providing new, exciting opportunities, but there is great uncertainty regarding possible adverse health effects and also impact on the environment.

The number of nanomaterials is constantly increasing and is one of the fastest growing technologies today.

Currently there are about 300,000 different types of nanoparticles and they are used in large number of products. These include products that you come in contact with in your day-to-day life, in cosmetics, medical products, paint, sports equipment, car-care products and computers to mention just a few.

There is an ever growing use within areas such as biotechnology, material technology and medicine, and nanotechnology provides us with a huge amount of new opportunities. But the technology is so new that we still do not know enough about possible negative effects on health and environment.

There are, however, some indications that nanoparticles can represent a health risk. One example:

So-called carbon nanotubes are used to strengthen materials, among other things. Today, there are around 50,000 different types of these tubes and, in animal experiments; some of them have proved to have similar properties as asbestos fibres.

But does this mean that these nanotubes constitute a health risk to people? And are there other hazardous nanomaterials? At the present time, none of the research that has been carried out in this area can give a conclusive answer to this.

RESEARCH IS LAGGING behind. For several years, If has had regular contact with research institutions in the USA and the Nordic countries in order to stay updated on the possible risks associated with nanotechnology. As a result of this contact If, last autumn, together with Professor David C. Christiani of Harvard School of Public Health in Boston, gathered leading experts at a workshop in Oslo. The nanospecialists come from research institutions and public authorities in the USA, Germany, Switzerland, Denmark, Norway, Sweden and Finland.

– We have a lot of data on the possible effects of short-term exposure to nanomaterials and they do not appear to be harmful in short term exposure, Wolfgang Kreyling from Helmholtz Zentrum München tells to the acknowledged Norwegian website forskning.no. He was one of the experts taking part in the workshop.

– But much is still unknown. We know little about the effects of long-term exposure. So there is still no clear answer to how restrictive we should be when using nanomaterials.

Professor Roland Grafström of Karolinska Institutet in Stockholm says that there are so many new things being developed all the time that it is almost impossible for the health and safety research to keep up with the technological advances. He estimates that this research today is lagging approximately 10 years behind the development of new technology.

In an ideal world, research on possible risks to health and environment would have been carried out in parallel with the research on technology and new opportunities. The reality is, however, different.

– In If we view the development of both nanotechnology and other technologies positively. But we are sceptical about using nanotechnology indiscriminately in every possible area until sufficient research into the long-term effects has been carried out, says Olav Breen at

If. He is a medical doctor and a specialist in occupational medicine. Over the last seven years, he has been working with Emerging Risks keeping a close surveillance on potential new risk areas, including nanotechnology.

– It is important for us to obtain the necessary knowledge so that we can provide up-to-date, useful advice to those of our clients that work with nanomaterials.

Up until now, the majority of the research on possible health effects from nanomaterials has been directed at the exposure employees in nano-related industries have been subjected to. This has been important and will continue to be an important research area in the future.

– We also feel that it is necessary to extend the research so that it also includes potential exposure to nanomaterials among consumers. This type of research is now being initiated at several research institutions, says Breen.

– The research on possible adverse

health effects must be prioritised and it is important that the public authorities practice the precautionary principle when it comes to the labelling and approval of products. Further testing must be done with regard to the effects of inhalation, absorption through the skin and through digestion.

THE RISK DEPENDS both on whether the substance has properties that could be harmful and to which extent people and the environment are exposed. The following questions could be useful in an attempt to map this: Will the substance be used to a considerable extent? Will the substance be released into the surroundings during different stages of its life? Will released substances be more stable against decomposition in the environment and in the human body? How will the substance be dispersed and behave in water, soil and air? Can the substance be absorbed into organisms, via food, the skin or airways?

How will the substance be dispersed and behave in the body? Can the substance damage cells, cell processes, tissues and organs?

– We do not have sufficient knowledge of what happens when nanoparticles end up in the body or in nature. But we suspect that if just as its small size can be the source of desirable properties, it could also be the source of undesirable ones. Its size could also mean that the particles are extra mobile and could reach places in the body and the environment that are otherwise protected, says Breen.

– What we know is that more and more nanoproductions are coming onto the market all the time and that children growing up today will be surrounded and influenced by this all through their lives. We want to encourage much more research work in order to map the health and environmental effects of this technology, he says.

Olav Breen emphasizes that the de-

Did you know?

Nano is the Greek for "dwarf". A nanometer is a billionth of a meter. The ratio of sizes between a nanoparticle and a football is equivalent to the relationship between a football and the planet Earth. You would have room for 100,000 nanoparticles if you cut a strand of hair in two and put the particles on one of the cross sections.

velopment of nanotechnology must not stop.

– Nanotechnology has given and will continue to give us many new and useful products, including products for medical diagnostics and treatment. But it is important to ensure the sustainable development of this technology by increasing the research on the environment and safety. Research on possible adverse effects should be carried out in parallel with the research into the fields of application and technological developments, says Breen. ■

Gunhild Gjelstad
Gunhild.gjolstad@if.no



Fazer: Top level focus on risk management

When Finns bring gifts abroad, they bring chocolate, salted liquorice and rye bread. These treats are often produced by Fazer, a company whose success is partly based on effective risk management.



The importance of enterprise risk management is increasingly evident in the operation of businesses. Risk management is seen as an essential part of management and integrated to the company's other business processes. Risk management is connected to competitiveness, cost-efficiency and quality. Instead of possessing a silo mentality, the goal is understanding and managing all of the organization-related risks.

Fazer is a good example of a company that has understood the meaning of a holistic point of view. Fazer is known for its sweets, cookies and bakery products, as well as its cafés and restaurants. It operates in Finland, Sweden, Norway, Denmark, Baltic countries and Russia.

For the last few years, Fazer group has made a determined effort to develop a holistic way of thinking about risk management. The general liability for risk management lies with the organization's leadership. It is also a part of the group's general management system.

"With this arrangement, we want to confirm that risk management receives the weight that it deserves. If risk management cannot receive organizational support, it can remain low in the list of priorities when money and other resources are being discussed," states the group's Deputy CEO and CFO, Jouni Grönroos.

Fazer's risk-management roles, responsibilities and good examples begin with the Board and the top level management. When

the Board accepts a risk management policy, it sends a message that it is important to comply with the agreed principles.

At Fazer, risk management is seen as a central function of achieving goals. From the management's point of view, the focal point of risk management is avoiding surprises, utilizing new possibilities and creating a risk-aware culture.

CLEAR RESPONSIBILITIES RELATED to risk management are necessary in a corporation with over 15,000 employees, where the range of the risks is wide and risk management organization, as such, is small. The task of business areas and units is recognizing and evaluating the risks of their own field and implementing the agreed risk management tasks.

Fazer's goal is making risk management even more an everyday business than it is today. This is about spreading risk awareness, which is a key factor in building a good culture of risk management. According to Jouni Grönroos, geography plays only a small role in the creation of a risk management culture.

"All the countries have the same possibilities for creating a good risk management culture. Instead of the cultural differences between the countries, often the most challenging factor is the hurried nature of everyday life. The people have a lot to do and many important matters on their agenda. Risk management must re-



Jouni Grönroos addresses the importance of top level engagement to Risk Management.

ceive enough bandwidth to operate."

The levels of risk awareness are usually the greatest in places where a certain risk has already actualized. Learning from one's own mistakes is very expensive, however.

Risk recognition and the spreading of risk awareness utilizes tools that we have found out to be highly functional. One of the single most important ways how risk management operates, according to Grönroos, are workshops, where various experts and representatives from different functions gather around to the same table. Twenty workshops were run during the last autumn alone.

"Workshops are a good way of distributing and deepening expertise. When people create ideas together, the end result is usually much more than singular experts offering their views on some matter. Valuable information also moves be-

tween workshops from some parts of the organization to the others."

Continuous communication, training and practice is used to construct risk awareness.

"Our goal is to make every employee understand that this is something that is important for them and their work. On the other hand, risk awareness is not enough - risks also have to be faced."

INSURANCE COMPANIES, WHICH

Jouni Grönroos calls Fazer's risk management partners, also participate in the implementation of this risk management culture. According to Grönroos, risk mapping performed by insurance companies is an efficient tool for improving operations. Risk awareness also has many positive side effects, such as quality, operational improvement and operational safety.

Fazer has noticed that positive feed-

back is the best tool in implementing a risk management culture. When an insurance company's risk survey report also includes positive feedback, it spurs us to fix the deficiencies the risk engineers have noticed.

The task of the insurance company is helping us to control the risks and avoid accidents. It is important that the customer and the insurance company can trust each other.

"Risk actualization is bad for us and bad for the insurance company. Thus, our aim is that risks are not actualized. In this, If has been an excellent partner for us."

Fazer recognizes that insurance may cover a single risk, but it cannot cover all of its effects. Even though a machine fault can be compensated out of insurance, for instance, no insurance may cover the effects that a production interruption causes for customer relationships.

"At the moment, we particularly focus

on securing the continuity of our business operations. We have already achieved a great deal in this regard, but there is still much more to do."

According to Grönroos, Fazer also still has ways to go in implementing a risk management culture. The essential thing is repeating the important message of risk management in an efficient way. The timespan of implementing risk-aware culture can be described using running terminology: instead of a short sprint, this is actually a marathon. ■

Mari Hätinén
mari.hatinen@if.fi



Low-carb boom challenged bread makers

Few years ago, an interesting development took place in the Finnish bread markets, as weight-conscious consumers began staying away from carbohydrates. Fazer had already noticed signs of a low-carb diet rising. However, the explosive low-carb boom surprised both researchers and companies with its intensity.

Fazer participated in the low-carb boom by developing low-carb bread. Only a moderate effort was made to produce low-carb products, which proved to be a wise decision, as the low-carb boom began dying down almost as soon as it had started. Fazer's Deputy CEO and CFO Jouni Grönroos says that a rapidly expanding dietary boom represents a risk, which can be refined into an opportunity.

"We must be able to predict changes in consumer behaviour and react to them quickly. It is essential to be able to find a potential for change in the risks. Enterprise risk management finds possibilities that might not be noticed in time otherwise."

At the moment, bread trends are focused on handmade bread and small and local bakeries instead of avoiding carbohydrates. In-store bread baking points also attract people with their smell of freshly-baked bread.

Consumer trend changes are only one example of the extensive risk landscape that a company like Fazer must continuously monitor to succeed.

If test shows potential risks
with PIR sandwich panels

A burning issue

A new If study indicates that PIR sandwich panels may react in a fire to a greater extent than their fire class rating would suggest.

Pre-fabricated sandwich panels are building components typically used in industrial premises for construction of roofs and external walls and for interior walls and ceilings of buildings that have special insulation requirements, for example cold storage rooms or freezer facilities.

The panels consist of two steel sheets bonded on each side of a slab of insulation material. The cheapest and most widely used panels have an insulating core of polymeric foam. Sandwich panels insulated with polymeric foam are referred to as “plastic panels” in this article.

Polyisocyanurate (PIR) is considered to be the most fire safe of the polymeric foams. Flame retardants have been added to the material to make it less flammable. Furthermore, the chemical structure of the material ensures charring of the surface, which helps prevent fire growth.

PIR panels are not generally considered to be combustible as they are Conformité Européenne (CE) marked with a reaction-to-fire class of B-s1(2),d0. According to the Euroclass System, B refers to “Very limited contribution to fire growth”, s1 to “Very limited smoke production” and d0 to “No flaming droplets”.

IF HAS EXPERIENCED a number of large fires in premises containing plastic panels. Laura Rastas-Jansson, Head of Risk Management at If, says, “We have had a number of cases where customers’ properties, which incorporate plastic panels, have been damaged by fire. In some cases, the damage was extensive”. ➔

As a result of these cases, If decided to investigate the contribution of plastic panels to fire growth. If commissioned a number of fire tests to compare the reaction-to-fire performance of two different insulation materials; sandwich panels with an insulating core of PIR and panels with an insulating core of stone wool. PIR panels were chosen because they are widely regarded as the plastic panels with the best fire performance.

THE TESTS WERE based on a modified version of an ISO protocol, used for testing sandwich panels, and carried out under the observation of research institutions at Lancashire Fire and Rescue in Preston in the UK, in collaboration with among others Professor Richard Hull from the University of Central Lancashire, who was present during the experiments, and Professor José Torero from the University of Queensland, Australia.

In other words, the tests were based on traditional fire tests, but certain changes were made to reflect conditions observed by If engineers during surveys of commercial properties. For instance, the test rooms were assembled by regular contractors and not by fire laboratory technicians. Additionally, the sandwich panel enclosures were subjected to carefully prescribed, simulated damage including holes from pipework, a cable tray across the room, piercing by a fork-lift etc. The standard ISO test protocol was modified, to allow for the fire to continue for longer than the standard testing period of twenty minutes and with a larger fire load.

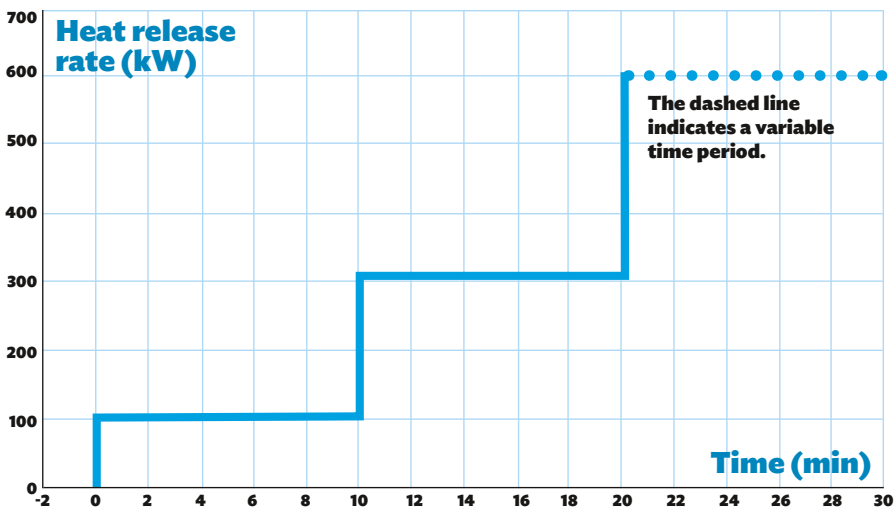
The results of the comparative study were as follows: The performance of PIR panels was not as would have been expected given their classification. In particular, the observed significant contribution to fire growth and generation of large quantities of smoke would seem inconsistent with the classification B-s1(2),d0 which indicates "Very limited contribution to fire growth" and "Very limited smoke production". The stone wool panels, on the other hand, performed in accordance with their classification.

On the following pages, we explain in more detail how the tests were conducted, what the results were and the lessons learned from a risk management perspective.

Table 1: Experimental configurations of experiments

Experiment number	Panel type	Propane burner output (minutes)			100 mm diameter holes through rear wall	Distance of cable tray from rear wall (cm)	Fork-lift damage, screw holes and vent duct
		100 kW	300 kW	600 kW			
1	PIR	7	10	3	3	50	yes
2	Stone wool	10	10	20	3	50	yes
3	PIR	10	2	-	0	100	yes
4	Stone wool	10	10	5	0	100	yes

Fig 1: Burner output



Background

Many consider PIR panels to be safe in fires, as they are CE marked with a reaction-to-fire class of B-s1(2),d0 material, which refers to "very limited contribution to fire growth with very limited smoke production and no flaming droplets".

The combination of steel sheets on the outer faces and mechanical interlocks are not always sufficient to isolate the combustible insulation materials from fire. If has observed a number of large, uncontrollable fires in buildings constructed with sandwich panels, and there have been indications that plastic panels contribute to fire growth and produce large quantities of dense toxic smoke to a greater extent than panels filled with stone wool. As regards relatively small fire scenarios, smoke damage can result in larger insurance claims than does the

damage from the fire itself.

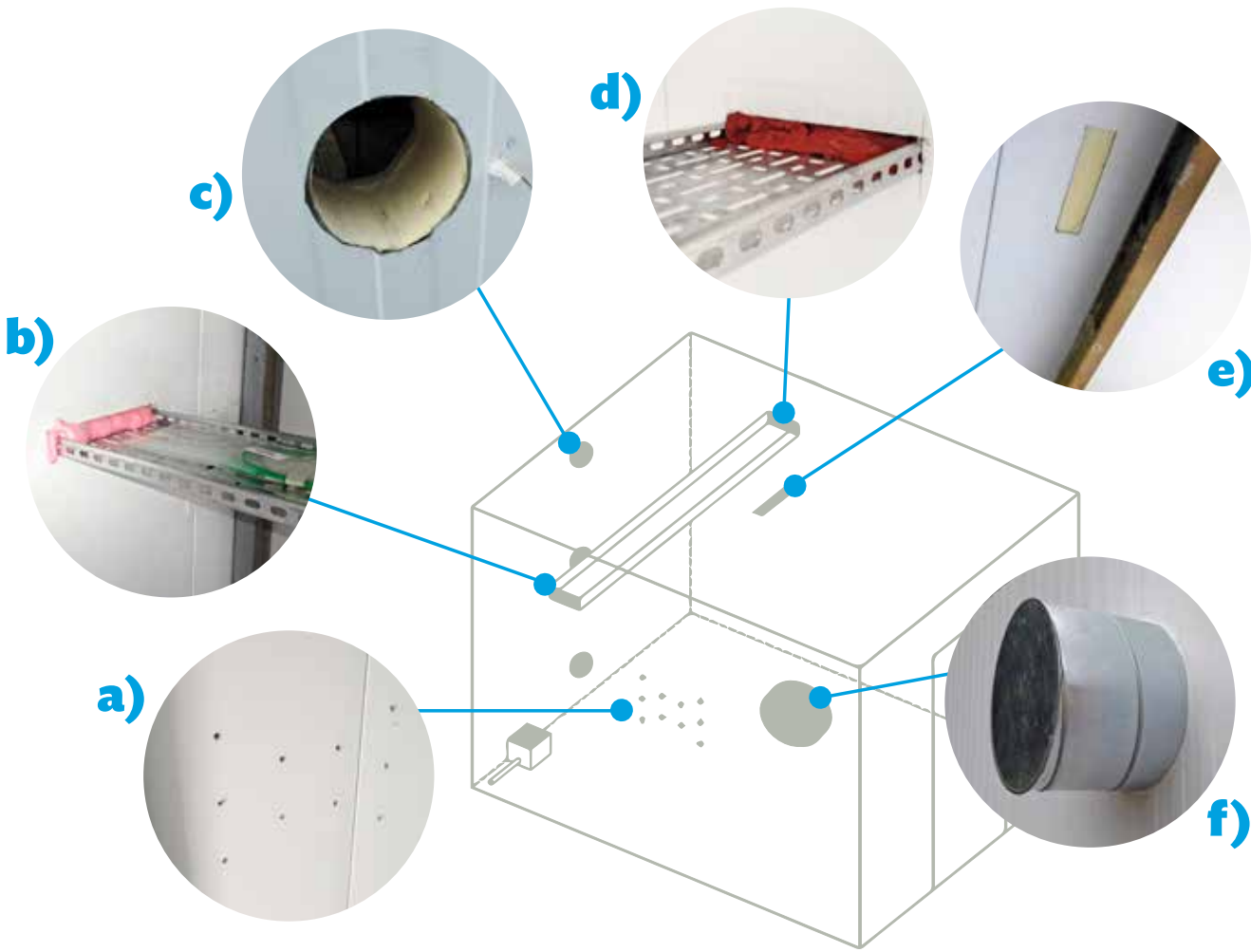
The main purposes of the If experiments described below were (i) to compare the reaction-to-fire performance of walls and roofs constructed from sandwich panels filled with the best of the polymeric foams and with panels filled with the best of the mineral wools; and (ii) to establish whether or not non-structural damage to the panel faces affects fire performance.

Experimental setup

The testing was carried out with sandwich panels filled with PIR- and stone wool insulation material. PIR has the highest fire safety rating of the polymeric foams and stone wool has the highest fire safety rating of the mineral wools.

The design of the test rooms were

Fig. 2: Images of damage to the panels. a) 10 screw holes; b) Cable tray, expanded plastic foam; c) detail of the 10 cm diameter hole (experiments 1 and 2); d) Cable tray, approved fire sealant; e) forklift damage; f) blanked off ventilation duct.



based on ISO 13784-1 (Reaction to Fire Tests for Sandwich Panel Building Systems — Part 1: Small Room Test) which describes the construction of a "small room", of dimensions 3.60 m x 2.40 m x 2.40 m (L x W x H), with a single open doorway, from sandwich panels, supported by a rigid steel frame. A propane burner placed in the rear corner of the enclosure provided the fire load.

A total of four experiments were conducted by university researches, with data recording of temperature, heat flux, inlet and effluent gas velocities, effluent toxicity and video data.

In order to reflect conditions observed by If in surveys of commercial premises, the ISO 13784-1 test protocol was modified to take into account the following features:

1. The influence of working to actual construction industry practices. As such, the test rooms were constructed by regular contractors who are used to

erect these types of structures, rather than fire test laboratory technicians.

2. The effects of larger fire loads actually found in commercial premises. As such, the fire load was increased after 20 minutes (see Fig. 1), whereas the un-modified ISO 13784-1 standard prescribes, that the thermal attack is turned off after 20 minutes of testing. The first set of experiments, 1 and 2, were carried out with a propane burner as the only fire load. The second set of experiments, 3 and 4, were augmented with a wooden crib placed in the centre of the room as additional fuel load.
3. The effects of non-structural damage/installations to the panel faces. As such, the wall and ceiling panels were subjected to different kinds of carefully prescribed damages, seen in Fig. 2 and described in depth in the following.

Holes for pipe-work

Three holes were cut through the panel, each with a diameter of 10 cm. The holes were positioned 30 cm, 120 cm and 210 cm from below the inner face of the ceiling in the center of the rear wall, exposing the insulation material.

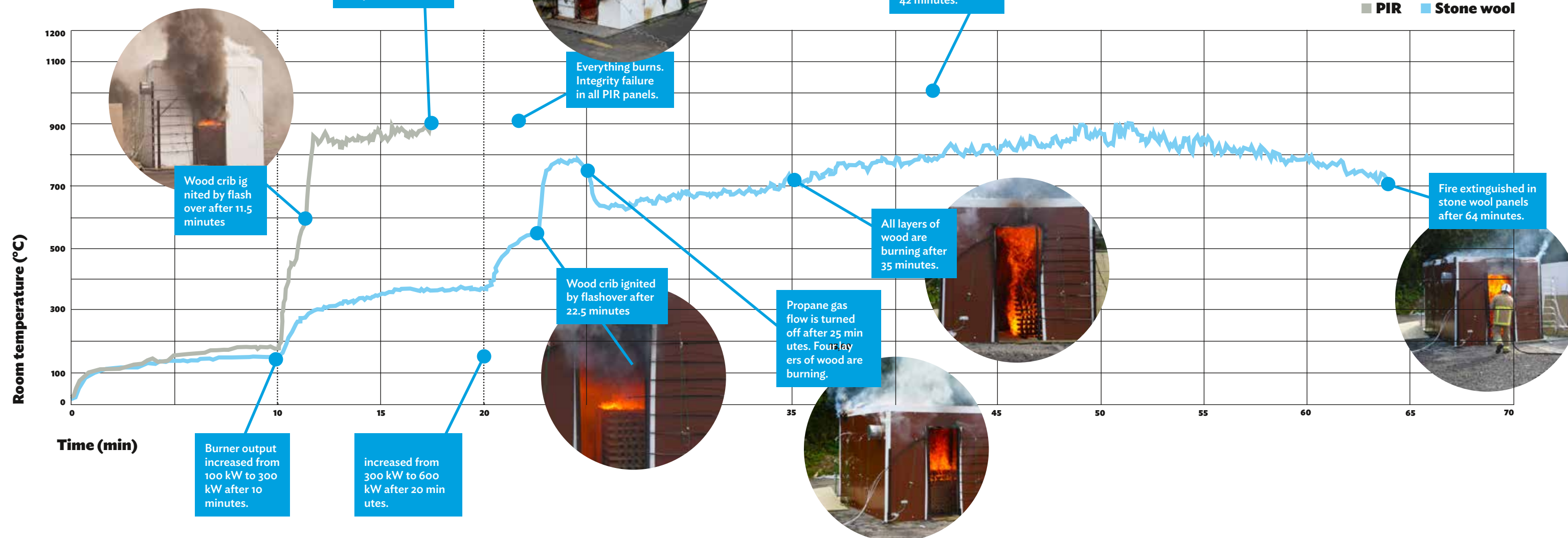
Cable tray

Passing through the entire width of the room, an empty cable tray was installed, 50 cm below the ceiling. It penetrated both sides of the wall element at each end and was sealed with an approved fire sealant at one end and expanded plastic foam at the other.

Forklift damage

Representative of forklift truck damage to the ceiling, the inner metal sheeting was removed on an area of 5 cm x 25 cm, ➔

Fig. 3: Temperature in the rooms as a function of time. PIR and stone wool insulation w/burner and wooden crib



thereby exposing the insulation material. The damage was positioned at the center of the ceiling.

Screw-holes

On the side wall adjacent to the burner, ten 10 mm diameter screw-holes were made by drilling through the inner metal sheeting and approximately 4 cm into the insulation material. The holes were positioned 150 cm above the floor and 170 cm from the rear wall of the room.

Ventilation duct

A ventilation duct was installed close to the doorway, positioned with its center 50 cm from the ceiling and 50 cm from the front wall.

The diameter of the ventilation duct

was 30 cm, and the hole was cut very precisely to fit around the duct. After mounting the ventilation duct, the hole was sealed with food industry approved sealant.

Upon completion of the first two experiments, test 1 and 2, minor alterations were made to the damage inflicted on the panels to enhance the longevity of the second set of tests.

Results

Installation error

Based on these experiments it is clear that integrity failure will occur regardless of panel type if the panels are not installed correctly. Installation errors, misplaced or missing screws etc., will likely lead to major integrity failure as the metal buckles, due to the high temperatures, creating gaps and thereby exposing the insulation material to the fire.

The test rooms were erected by a recognized and specialized company who are used to erect these types of cooler/freezer rooms, and not by fire test laboratory technicians. Though the rooms are not typically assembled exactly as specified

in the instruction manual, the contractors were asked to take this as a starting point. These test rooms were built as they would normally be built in a real-life scenario, both with regards to retention of the panels using rivets etc. but also with the types of sealing material used for sealing the holes etc.

Temperatures

The data compiled from the four tests indicates that the outcome of a compartment fire is different depending on the type of insulation material. Though all the data has yet to be processed, some results are presented below.

Fig. 3 shows the room temperature in the centre of the room just below the ceiling for the second of the PIR and stone wool panel experiments, the one

where an additional fuel load in the form of a wooden crib was present. The temperature is somewhat similar during the first 10 minutes, where the fire load consists only of the output from the propane burner, which is providing a heat release rate (HRR) of 100 kW as per Fig. 1. A 100 kW fire is equivalent to fire in a waste paper basket.

As the HRR is increased to 300 kW (equivalent to a fire in a small sofa), the measurements of temperature indicate that the PIR panels are contributing to the fire, leading to flashover after 11.5 minutes, which ignites the wooden crib. In comparison the temperature during the stone wool panel experiment seem to follow the heat release output of the propane burner with exception of when the wood crib is ignited after 22.5 minutes, which is 2.5 minutes after the HRR has

See the highlights from the test! A video with highlights from If's sandwich panels test can be seen at www.if-insurance.com/firetest



been increased to 600 kW. The temperature then slowly increases as more layers of the wooden crib are ignited until the fire is extinguished.

Integrity failure

The fire in the structure with stone wool panels was extinguished after 64 minutes and the fire in the structure with PIR panels after 42 minutes. The integrity failure was extensive with regards to the PIR panels but also present in the structure with stone wool panels, here mainly in the roof structure. Moreover, the amount of pollutants while burning was significantly higher in the PIR structure.

A substantial mass of the PIR material within the panels had incinerated in some places; only a relatively small amount of char remained between the two metal sheets. In comparison, the stone wool

insulation had been scorched due to the high temperatures, but did not appear to have significant mass loss.

Non-structural damages

The subjected installations/damages, which were monitored with temperature measurements, contributed differently to the progress of the fire. The damages to the wall panels are all of significance, however the consequences of said damages varies greatly.

Clear lessons based on these experiments are explained in the following:

- Panel holes sealed with non-combustible sealing material:

Difference compared to undamaged panels is almost insignificant. This was the case with the cable tray sealed with fire-approved sealing material; see Fig. 2 (d).

- Panel holes sealed with flammable

sealing material, for example foam:

Sealing material has no effect and will melt/burn, thereby allowing smoke and fire spread.

- Panels where combustible insulation material is freely exposed:

The insulation material will ignite independently of whether or not it is directly affected by flames when the room reaches a certain temperature. ■

Martin Sørensen
martin.sorensen@if.dk



Experts commenting the fire test



Richard Nilsson,
Managing Director, Fire
Safety Design

“Our typical customers are construction companies and firms that want to build a property. Obviously, they are all interested in building the property in the most cost-efficient way and PIR panels are inexpensive.”

“However, although legislation allows the use of these panels, Fire Safety Design believes from experience that the performance of PIR panels under extreme fire conditions is not up to standard. If's tests appear to back up our opinion.”

“The fundamental problem is that when products are tested for fire resistance in order to obtain type approval, the tests are conducted in a laboratory. There you have both the time and the resources to build with millimetre precision.”

“That's not how it is in real life. No one can afford to build with such extreme precision. What's more, the structural members are cut or drilled to allow electrical cables and such like to be pulled through. Laboratory tests do not take account of that. The results are exactly what If's tests have shown.”

“Companies should therefore think very carefully about using PIR panels, especially in exposed areas of the building.”



Grunde Jomaas,
Associate professor,
Technical University of
Denmark

“If's tests show that a fire classification does not always equal performance in real life fire events.”

“It is of course very difficult to construct tests that apply to all kinds of situations. The tests are generic and the test results are not always applicable in environments that differ from the one specified in the test standard.”

“In particular, this is the case for many industrial constructions. Here, the use of the type of sandwich panel is frequent, the environment is often demanding and great values, sometimes in the billions, may be at stake.”

“The generic tests are not sufficient in these environments. In the long term, it could be beneficial to supplement the current classifications with tests that are deemed to predict and ensure performance in these extreme industrial environments.”



**Poul Steffensen, Head of
underwriting, If**

“If has been quite cautious with plastics in constructions for several years. But earlier we have thought PIR panels were only slightly combustible, and not contributing to a fire. So we have been less strict with those panels when discussing insurance requirements with clients.”

“The If test however raises serious concerns that in some real life situations PIR panels may not perform in accordance with their classification. Therefore, we will review our underwriting approach to them.”

“In my opinion, clients planning to build new constructions should, from a fire safety perspective, seriously consider using solutions other than PIR panels.”

“Clients with existing buildings with plastic panels in exposed areas should consider changing them. If that's not realistic, other strict fire safety measures should be taken, such as installing sprinklers, secure a super good maintenance of the panels, follow up that holes etc. in the panels are not broken – and if broken changed.”



Under-insurance

Losses that are affected by under-insurance are becoming more frequent, and when it happens, the consequences are dramatic for the company in question.

We talk about under-insurance when the claim is higher than the agreed insurance amount. This means that the company has paid too low premium and is not entitled to full remuneration for property damage. Clearance and salvage costs are also affected since they are paid proportionate to the property damage.

IN 2010, THERE was a fire in a mechanical workshop in Frankfurt, Germany, which had serious consequences in terms of smoke, fire and water damage to the machinery and building. The fire probably started in the ventilation system and spread via the fans to the walls and roof.

The property damage amounted to approx. SEK 50 million overall. Due to under-insurance, the remuneration was reduced by 20 per cent for building and 50 per cent for machinery. SEK 9 million was not indemnified due to under-insurance. However, the customer had the foresight to sign an Under-insurance guarantee which provided extra coverage. The total sum lost by the customer due to under-insurance was just over SEK 3 million.

A THOROUGH VALUATION of machinery and building should be carried out at least once every five years using a tried-and-tested valuation method. To keep this valuation up-to-date, investments and disposals should be reviewed every year.

Inflation and exchange rates may contribute to new conditions. A fall in the value of the home currency results in a significant increase in the acquisition value of foreign machinery. This means that the insurance amount for the industry in the country in question runs the risk of becoming too low.

Some other points to bear in mind:

- Inventories and machinery booked under expenses should not be missed out of this annual review.
- Fixed assets – what applies according to the agreement?
- In our experience, many countries use the posted (depreciated) values as the insurance amount. This increases the risk of under-insurance.
- Foreign valuation companies may also have another view of how the sum should be calculated.
- Upcoming changes in production.

TODAY, THE INSURANCE industry uses a number of different index series for e.g. building and machinery. When you study e.g. Swedish index series, you can see that the indexes for machinery have not developed in the same way as other indexes. During the period 2005–2012, the index for building increased by 29 per cent while the machinery index fell by 12 per cent.

One explanation for this might be that the ma-

chinery index comprises a number of underlying index series for e.g. computers, electrical equipment, furniture, dental equipment, installation and repairs. The price decrease for computers has been significant, which of course has affected this index series.

If you look at SCB (authority for index in Sweden) index for Workshop for the period 2005–2012, you will see that it has increased by 2 per cent, and if you choose to eliminate the influence of computers, the index series has increased by 19 per cent.

In conclusion, it is very important that the company taking out insurance does so on the basis of a valid and relevant index series for the actual machinery. A hasty or perfunctory choice may lead to a risk of under-insurance. ■



Mats Gådin
mats.gadin@if.se



Mikael Jansson
mikael.jansson@if.se

Declared Values

The Replacement value for machinery must correspond with the cost of buying an equivalent piece of machinery today. All costs must be included in this value, e.g. planning, transport, materials, installation and trial runs.

The Replacement value for building must correspond with the cost of which would have been incurred if the building had been completed as new and shall include all costs necessary for the building to be brought into use.

Building with a replacement values established using If-approved valuation methods can be insured to full (reinstatement) value. Any damage will be covered even if the remuneration exceeds the sum calculated.

First loss insurance can be taken out for property which, due to its age or some other reason, cannot be insured to full value. Damage, including clearance and salvage costs, will be remunerated up to the agreed sum.

When loss of profits insurance is taken out, the company's insurance contribution margin must be calculated. The insurance amount must at least correspond with the company's contribution margin during the indemnity period.

The indemnity period should be the longest period you believe operation will be affected by the damage, i.e. not just restarting production but also obtaining the lost market shares. The indemnity period may therefore be either one or several years ahead of the date the insurance starts if the damage occurs at the end of the insurance period.

Companies with significant seasonal variations should always choose an indemnity period corresponding to the entire year.

Insuring against under-insurance

Index and investment insurance

If index and investment insurance is taken out, this covers all investments and changes according to the building and machinery price index during the insurance year.

New locations

This insurance applies to new property investments during the insurance period with regard to building and machinery/inventories, from the date of acquisition or the date of transfer of risk.

Under-insurance guarantee

Indemnification is paid up to the relevant insurance amount without the application of provisions for under-insurance in the event of accidental errors or an omission on the part of the policyholder concerning the valuation of building or machinery/inventories.

Loss of profits insurance with premium adjustment in retrospect

The reported amount must be equal to the insurance contribution margin during a subsequent period corresponding to the length of the indemnity period. The reported sum, usually increased by 20 per cent, applies as an extra buffer.

A consultation is arranged at the end of the insurance period and a possible premium adjustment takes place as a result of the actual outcome.

After Superstorm Sandy The cheese saving operation

In October 2012, Superstorm Sandy threatened to destroy millions of dollars' worth of cheese, which was stored in a cold storage facility in New Jersey. However, as a direct result of Valio's quality control and an expeditious saving operation, the damage was limited to only a third of the original estimate.

CHANGES OCCURRING IN the business environment are creating new emerging risks for business enterprises. One factor for this is climate change.

Superstorm Sandy, which struck New York and New Jersey at the end of October 2012, was not a surprise in itself, but its destructive effects could not have been predicted by anyone.

The weather forecast offices confirm the magnitude of the surprise. In accordance with the NOAA's 0-6 step scale, which measures the energy and destructive potential of storm wave energy, Sandy received the all-time highest rating of 5.8.

VALIO LTD IS the largest milk producing company in Finland. One of its five subsidiaries Finlandia Cheese is dedicated to selling and marketing cheese in the United States. It purchases cheese processing and logistics as an outsourced service from its partners.

The cold storage facility, which was being used by Finlandia Cheese during superstorm Sandy, was located in the large port area of the City of Elizabeth, near Newark International Airport, New Jersey.

Even though the storage facility had been built in a low flood-risk area, it was

not spared from the mass of flood water. The water began rising inside the storage facility on Monday 29th of October at about 6pm local time.

The water level in the storage facility quickly reached 70 cm. During the worst of the storm, the effects of the tides and storm winds caused the sea-water in the City of Elizabeth to rise 14 feet (4.3m) higher than normal.

The five-storey cheese storage facility contained a total of 80,000 boxes of cheese and the bottom layer of the boxes was under the dirty water. The flood peak lasted over six hours.

At the same time electricity was cut off in large areas of New Jersey and New York and this was causing an additional headache.

The most important factors determining whether or not the cheeses could be saved and were saleable were the durabil-

ity of the packaging materials, the maintenance of sufficiently low temperatures and the speed of the logistics chain.

"The floodwaters had filled the storage yard and its surroundings with debris that had to be cleared away first. After finally clearing the loading bays, we began transferring the saved cheeses to the other cold storage facility," explains Paavo Salminen, Valio's business development manager. Mr Salminen also acted as Finlandia Cheese's quality manager during Superstorm Sandy.

"As a result of the storm damage and the loss of electricity, we

had to move to paper-based book-keeping because we were unable to use the computers. The delivery books had to be created manually. Luckily this is still a skill that is well-remembered in the United States, so the work proceeded quickly. At the receiving storage facility the de-

Reacting quickly and a determined operating strategy in such unexpected conditions is probably of decisive significance in interbusiness competition.



Valio's business development manager Paavo Salminen acted as Finlandia Cheese's quality manager during Superstorm Sandy.

livery records were also checked carefully, the temperature of the cheeses were measured and every effort was made to carry out the work as consistently as possible," says Paavo Salminen.

HOWEVER THINGS COULD have been significantly worse. There was the possibility of an even greater amount of cheese being spoiled. Fortunately, the weather cooled down considerably after the storm. Another lucky break was that there was a large shipment of cheese arriving in the United States from Finland. The public officials told the ships to stay away from the ports and wait in the Atlantic for the storm to abate.

Finlandia Cheese employed 25 workers. Because there were no injuries to the personnel, it was possible to concentrate on what to do with the cheese packages that had not suffered from any water damage. Electricity and transport continued to be cut off and this made communications difficult.

As a Valio trained and experienced cheese assessor, Paavo Salminen knew that as long as they acted quickly, they should have all the prerequisites for saving the cheese.

If's claims engineer Juha Liimatainen credits Paavo Salminen and the other Finlandia Cheese personnel involved in the saving operation for their quick think-

ing and decisiveness. "Amidst all the chaos, they managed to obtain a large number of lorries which were used to transport the cheese to another storage facility, 50 km away, that had operating electricity and cooling equipment."

Juha Liimatainen reminds us that in addition to telephone lines and computers, petrol stations were also for some time unavailable. There were also problems with fuel distribution.

Preserving the safety and quality of the cheeses was set as the main goal of all our operations. Valio Ltd's risk manager Päivikki Savola emphasises that "reacting quickly and a determined operating strategy in such unexpected conditions is ➔

What lessons have been learnt, Päivikki Savola, Valio's risk manager?

“Based on the experiences we garnered in regards to Superstorm Sandy, we have together with If's experts and our insurance broker, reviewed the natural disaster risks of our various storage facility locations and checked the adequacy of our insurance coverage.”

“Finlandia Cheese has carried out its own strategic decisions concerning what type of storage facility will be used in the future. The storage facility which was damaged by Superstorm Sandy is no longer being used by Finlandia Cheese. At the time of the storm, the storage facility was located in what was considered to be a low flood-risk area. However, as a result of the storm, its flood-risk classification has probably been changed.”

“We also wanted to secure the operations of our data systems, so after superstorm Sandy, we sent an expert from Valio's data management to map and develop IT-continuity.”

“However, perhaps the most essential element is that Finlandia Cheese has several partners to handle storage matters, cheese cutting and cargo packaging. This is the best form of continuity planning. Even during Superstorm Sandy, we were not dependent on only one operator. Our operational partners were there to help their customer and they also wanted to do so.”

There is one more aspect that Päivikki Savola would like to highlight. “Valio had product-safety-related crisis communications plans, which formed the basis of our operations. Following a crisis communications plan is extremely important to ensure that we always know who is making the decisions, when and where.”



probably of decisive significance in inter-business competition.”

“Our crisis management team made the decisions on how to proceed in this case. We were able to get to the front of the queue because we acted quickly”, explains Paavo Salminen as he relates how the whole process developed.

“Finlandia Cheese's good local network meant that we were able to contact companies that could help us assess food safety and provide us with assistance on how to manage in exceptional circumstances.”

This created a rapid chain of contacts, which was further advanced with the help of people from Valio, an external expert and the US Food and Drugs Administration; FDA. FDA experts directed us on how to proceed and how to fulfil the saleability conditions set by the public authorities.”

THE TRANSFER OF the cheeses from the storage facility, which had suffered the flood damage, was only the first phase of the saving operation of the cheeses.

Firstly, all of the goods were assessed

visually. Then, a risk assessment was carried out to decide which of the packages would be taken for further treatment. After this, an extensive sampling plan was created. This was done however, in accordance with the instructions given to us by the public authorities.

“After the cheeses had been transferred to the new operational storage facility, measures were taken to ensure product safety and quality. In practice, this meant unloading the cheeses from the transportation pallets and taking samples,” says Hanna Jatila, a sensory quality control ex-

pert, who had been urgently summoned from Finland.

We divided the packages of cheese into three classes. This was also in accordance with the instructions which had been given to us by the public authorities. We rejected those cheeses, which on the basis of a visual inspection, were in damaged packages. For the rest of the cheeses, we used the templates given to us by the public authorities to conduct microbiological and sensory analyses.”

“Knowledge of our own product and packaging are of paramount importance

at this stage. After all, foodstuffs are packaged to protect them from external stress,” says Hanna Jatila.

According to Hanna Jatila, the cheeses were saved mainly due to the fact that they had been packaged properly and that the packages had remained intact.

The risk assessment phase lasted a total of seven weeks. It was 3-4 weeks, i.e. a considerably long time, before we were able to start delivering the cheeses to the stores. Our customers had also lost their stocks. When the electricity went off in the shops, the foodstuffs spoiled and had to be transported to the landfill,” explains Salminen.

Valio has a regular customer base in the United States, which is maintained by ensuring a high level of product quality. This was also Valio's main focus after the flood.

“We quickly received a large number of orders. Fortunately for us, we had a shipment of cheese arriving at the port, which we distributed to the customers and stores with only a few weeks' delay. We were also able to swiftly order more cheese from Finland. We were only able to deliver the storm-affected but inspected cheeses to our customers in December.”

All in all, the situation was extremely challenging. “Our office was also located in the affected area. Therefore, we initially worked from our homes, until we were able to set up a temporary office in a local hotel.”

FINLANDIA CHEESE QUICKLY obtained the help of an expert who had great experience regarding similar post-storm situations and was of invaluable assistance concerning the authorities and their licensing procedures.

“The experience of the expert included being part of Hurricane Katrina's post-rescue operations in 2005. The expert's experience and vision were of great benefit,” says Paavo Salminen.

“In addition, of course, we were in constant contact with Finland and with Valio's experts who have the knowledge regarding cheeses and product safety and who were well aware of how to operate in exceptional situations. We were also in contact with If's own experts through our insurance broker.”

Valio had at least two roles at the same time. One role was being in a central position regarding the quality control of the remaining cheeses and, due to the extraordinary circumstances, another role of being the organizer of the delivery process of the orders and the cheese-related logistics.

“Precise temperature monitoring

throughout the entire journey and storage process was an important factor in being able to save such a large amount of cheese,” says Hanna Jatila.

The cheeses are delivered by ship from Finland to the US in refrigerated containers. The cheese pallets have been equipped with temperature indicators, also known as loggers, to ensure that the cheeses have been stored at the proper temperature throughout the entire delivery and storing processes. This is the normal practice.

A logger measures the temperature stress experienced by a product. It can be used to determine whether or not the product has been stored at its optimal temperature.

Finlandia Cheese had two storage facilities in New Jersey, one of which was about an hour's drive away. “This storage facility did not experience a power failure and its cold storage remained operational throughout the entire crisis. The company that rented out the temporary storage facility also had transportation equipment that was placed purely at the disposal of Finlandia Cheese.”

According to Juha Liimatainen at If, in the worst-case scenario, the damage could have been several millions of euros.

The catastrophe would not only have been bad for the insurer but “it would also have been hard for us, irrespective of the fact that we received compensation. We could have been off the market for a longer period, even though some of the cheeses were on the ship waiting to get into the port and deliveries from Finland had been expedited,” says Päivikki Savola, Valio's risk manager.

A company that operates in the United States must be well-prepared for all types of risks. In addition to being knowledgeable about the local business culture, one of the recognised prerequisites for success is good risk management. An essential part of good risk management is comprehensive insurance coverage.

“The insurance experts working at If and its co-operation partner Liberty Mutual Global meet on a regular basis with the aim of improving their operations and developing new ways of providing If's Nordic customers with the best possible service,” says Juha Liimatainen from If. ■

Harry Nordqvist
harry.nordqvist@if.fi



Holmen's best tip to prevent claims: "Keep things shipshape"

A close working relationship between the operations managers and the head of insurance Jonas Berg keeps Holmen's risks in check.

Jonas Berg is Head of Insurance/Risk Management at Holmen, the Swedish forestry industry company. Berg is responsible for arranging all the insurance for a business that encompasses everything from paper manufacturing to energy production and large forest holdings. It goes without saying that this job also involves all the work associated with loss prevention and risk management.

Holmen is a classic example of Nordic industries: long-term, profitable and efficient with products of absolute world-class quality.

"For Holmen, insurance is about protecting our business and balance sheet," says Jonas Berg.

"We do this by having a good insurance cover, by working with loss prevention and taking an active approach to risk throughout the entire Group.

"Holmen is part of a capital-intensive industry with high investment values and big production volumes at every facility. The safety of the new recovery boiler in Iggesund, the electricity generation from our own turbines and the production from the newspaper and cardboard machinery are most critical. A major claim can cost several hundred million Swedish krona. So obviously insurance and a good business partner in this area is important for Holmen.



Jonas Berg
Age: 57
At Holmen since December 2000
Educational background: Degree in economics from the Stockholm School of Economics
Family: Married to H      , three adult children
Lives: In Stockholm.

"In terms of risk we have three levels. There are smaller frequency claims that shouldn't affect our insurance. Then we have claims with a total cost of up to SEK 100 million which we try to prevent by cooperation between risk engineers and operations managers at our facilities. When it comes to risks that can cost more than this, we work long-term, aiming at eliminating the risks through technical improvements and skills development."

What approach do you take when you buy insurance?

"The important thing is to be on a balanced level in relation to our risk appetite," says Jonas Berg.

"The main purpose of our insurance policies is to provide protection in the event of really large claims.

"We're not going to overbuy insurance as that can be counter-productive. If you do that you end up with too high insurance costs as well as running a risk of having more frequency claims as a result of lower risk awareness within the organisation.

"The insurance companies know a great deal about the risks in our industry both in day-to-day operations and when it comes to assessing disaster claims.

"If we could wish for a next step, it would be for the insurance companies to be better at describing major risk scenarios more clearly and giving an idea of the consequences in the form of property damage and shutdown time. And preferably also having an idea of the investment cost required to reduce risk in line with their current recommendations, not only in the form of technical protection but also with regard to the development and expertise of staff. Then it's up to us; in other words, every facility has to make its own assessment of the risk and which priorities are the right ones," explains Jonas Berg.

You work closely with the operations managers within the organisation. Explain how this system works!

"To me it's really important to work closely with all my experienced colleagues at Holmen in risk management questions, so that we together ensure a high availability in our production," says Jonas Berg.

"We work pretty informally with the insurance issues, following a fact-based and hands-on approach.

"You could say that I take on the role of an internal insurance agent. Whenever we make decisions relating to insurance, the managers at the mills and I weigh up ➔

This is Holmen

Holmen is a Swedish forest industry group with annual sales 2013 of 16, 2 MSEK and almost 4,000 employees.

Holmen operates in five business areas.

The Holmen Paper business area manufactures printing paper for magazines, catalogues, direct mail etc. The paper is manufactured at two mills in Sweden and one in Spain.

Iggesund Paperboard produces board for consumer packaging and graphics printing at one mill in Sweden and one in the UK.

Holmen Timber produces sawn timber at two Swedish sawmills.

Holmen Skog is responsible for managing and developing Holmen's land holdings, which comprise around 1.3 million hectares. Holmen is about 60 per cent self-sufficient in wood.

Holmen Energi is in charge of the energy-related operations. During a normal year, hydro power production amounts to around 1 100 GWh. Holmen's self-sufficiency in electricity is around 40 per cent.

Holmen's shares are listed on the Nasdaq OMX Nordic Exchange.

Henrik S       is CEO, from April 2014.





Extending risk management to resilience

Recent trends that favour lean strategies have created continuous headaches for risk managers. Large companies need advanced risk management methods if they are to maintain business continuity. This can be costly, but it can pay for itself many times over.



the insurance companies' proposals, my insurance expertise and my colleagues' in-depth knowledge of the risks of the operations in question."

How do you work to prevent claims?

"As I see it, the most important factor is personal safety and having a good working environment. This may sound a bit odd when talking about property insurance, but buildings and machinery can always be replaced. When it comes to personal injury, we have a zero vision," explains Jonas Berg.

"Unfortunately serious injuries and even deaths do occur sometimes in our industry. But we are working hard to minimise these risks in the long term.

"From a more traditional insurance perspective, our long-term objective is to have good risk management, reduce the number of claims and thus achieve a low risk cost. With regard to insurance costs, one way of doing this is to work with the deductible and also the scope of the insurance cover, given that in a future with increasing and more varied risks we must admit that perhaps not every type of sud-

den and unforeseen claim can be covered by insurance. But, as mentioned, this does mean we need to have a very good overview of the risks.

"We've built up a great deal of know-how over many years on maintaining production and being able to restart quickly if an unexpected disruption should occur.

"With all this in mind, I have to say that in my opinion the most important thing to do to avoid claims is probably something as simple as keeping things clean, tidy and shipshape throughout the business. Everywhere and at all times. As far as Holmen is concerned, the Lean projects underway at our facilities are the next step when it comes to the combination of good order and greater productivity."

Holmen is part of an industry with a long history. How do you view new challenges like IT attacks and environmental risks?

"We have a great deal of respect for new risks and try to monitor those sorts of incidents as soon as something happens. There are crisis groups, both at our facilities and at Group level, which are called

in for this type of situation. Afterwards we assess whether additional measures are needed and if there are things which could happen again. It is important to focus on real risks, trendy threats can sometimes be rather exaggerated in the general debate or within the media. Naturally the risk of stoppages and production disruptions is always the key, and these are the issues we always return to.

"To take just one example, like most other companies we have experienced minor virus attacks on the IT side. Our prevention work and our management of this type of risk have worked well," says Jonas Berg. ■

Ulf Bäckman
ulf.backman@if.se



BUSINESS INTERRUPTIONS HAVE typically arisen through damage to the entity's own property. However, extensive outsourcing and vertical dis-integration have caused these circumstances to arise increasingly at suppliers' sites. In a world of many strong interconnections, dependencies on others can force companies to discontinue operations because suppliers cannot deliver parts or because property damage incurred by customers has rendered the customer unable to receive the items.

In addition, interruptions can occur in the absence of damage at any site. Strikes can bring operation processes or work at critical logistics nodes to a halt, and regulations can force operating environments to change in such a way that business cannot be continued as before. In addition, the natural environment's hazards can have an impact, not only on manufacturing operations as evident in recent years but also on service providers, as the volcanic ash cloud did in Europe in 2010, bringing much of the airline industry to a halt and thus creating huge losses for airlines, insurers, and travellers alike.

There are far more risks – of diverse types – than one can foresee and be prepared for. Although most risks can be managed, companies may not find practical ways to avoid incidents that could interrupt their operations. It seems very unlikely that a company could avoid some impact, even if only a small one, related to business interruptions in the long run.

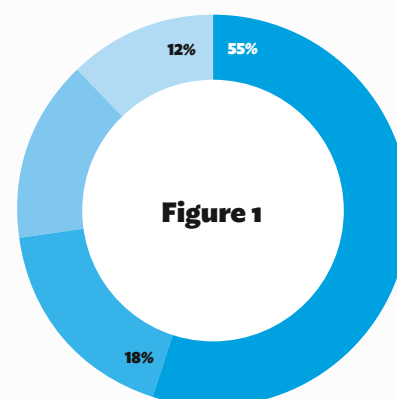
BUSINESS-INTERRUPTION-RELATED losses induce negative consequences of various sorts, which can exert an effect in the short term or longer term. I have interviewed representatives of a few high-volume production companies, who agreed unanimously that the worst impacts of business interruptions were direct financial losses from interrupted production, in combination with the subsequent lost sales. There are also several other consequences, depending on the incident and business environment, that lead to indirect financial losses. Business interruption

can cause loss of market share, bruised partnerships, quality problems, deterioration of one's reputation, and ineffective use of resources, along with many other possible detriments.

Companies facing extensive business interruptions are in a worse situation than their competitors because they have to reorganise their resources for recovery, while unhurt competitors can concentrate fully on the development of their operations.

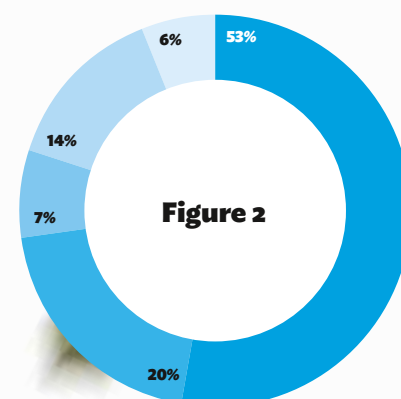
There are many scientific estimates of the probability of going bankrupt after a serious loss, and, in general, they show that the likelihood of bankruptcy is remarkably high when interruptions become prolonged. Lengthy recovery periods may lead to unacceptable decline in financial and operational performance, to far below competitors' levels, such that survival amidst the harsh competition becomes difficult.

Today, complex dependencies and business environments seem to cause increased frequency of business interruptions. So, it is better to be proactive and prepare, for faster recovery, than to



■ Risk transfer
■ Administrative
■ Self-retained losses

■ Loss control, resilience



■ Risk transfer
■ Administrative
■ Self-retained losses

■ Loss control, resilience
■ Savings

learn only after a slew of negative consequences have hit the business. Let's take a look at resilience, what it is, and how it works.

A definition for resilience

Resilience is a fairly new risk management buzzword that appears in trendy articles and presentations, but few can define the word.

Whereas the concept of risk management is familiar to us, and scientific study of it dates back to World War II, resilience in a business and risk context has been studied for only about a decade. It's still in its infancy in both its definition and its application in practice.

Since this is a new concept, researchers and practitioners approach it from different viewpoints and end up defining it in many ways. Described concisely, it is 'ability to bounce back', or 'capacity to adapt', but not all useful definitions can make it that brief. Most definitions used for it do, however, share the idea that involving resilience differs from tradition-

al risk management and has a meaningful role in minimisation of loss and in improvement of business continuity.

RISK MANAGEMENT APPLICATIONS

in companies do not always take unforeseen risks into sufficient consideration. A parable clarifies the idea. Narrowly focused risk management is a student who predicts the questions asked in the exam and prepares for them very well. Resilience is another student, who reads the books cover to cover, knows the big picture, and understands everything quite well but cannot answer the expected questions in as much detail as the first. Resilience provides a broad cushion, while inadequate, restricted risk management focuses only on expected matters, what is foreseen. Narrow risk management works well when one can predict risks efficiently, but what if new risks arise, from new sources that had not been considered? Then resilience is greatly valuable. We see that both approaches have strengths and weaknesses, but when working together, they would get the best marks.

Risk management is absolutely necessary if companies are to be able to foresee specific risks, be able to respond to them effectively, and be prepared for surprises. As risks grow, increasing with companies' expansion to other countries, they cannot see – let alone manage – all the risks they face. The truth is, however, that even the best practices in risk management cannot shield absolutely against losses. But strong business resilience gives them greater ability to withstand the shocks that unforeseen risks bring.

RESILIENCE IS A versatile concept. Therefore, its application must be versatile, too. One can gain resilience in a multitude of ways, and each method has its own benefits and costs. Accordingly, thorough analysis of the vulnerabilities in the business environment would be useful if we are to recognise the most suitable ways to achieve resilience.

Optimally, the decision-makers know their companies' key vulnerabilities and hence can recognise the best ways to gain resilience: without sacrificing too much

money, still have the risks under control. This is about balancing the vulnerabilities and capabilities, with the result being optimal resilience.

Resilience as a method of surviving and even being successful in a risky world is not without its costs. Resilience manifests itself in redundancies, agility, flexibility, and many other attributes that are, in fact, costly to achieve. If resilience were free, it would probably have been embraced by companies on a wholly different level a long time ago.

Companies use insurance, and they are ready to pay the premiums. They understand that conducting business without insurance cover is too risky. Now that awareness of resilience is on the rise and as concerns about business continuity soar, I expect investments in resilience to take off, forming a complementary element in enterprise risk management practices. Ability to bounce back rapidly and endure the shocks better is a huge competitive edge. In addition, it is very likely to reduce the losses. Thereby, the investments pay for themselves, at least par-

tially and perhaps many times over, when the company is able to minimise the losses from both property damage and business interruptions.

Examples of gaining resilience are plentiful. FedEx have added capacity and now fly empty planes in order to have them in locations from which they could respond to problems with flights. They understand that doing this increases their operating costs, but it would be even worse if their shipments were not delivered on time. Intel has increased its' flexibility by designing the production facilities in the same way for each plants – this makes them able to produce components flexibly everywhere (Sheffi 2005).

THE FINDINGS AND insights this article has presented in relation to business interruptions and resilience may help in bringing more facets to companies' analyses of their risks and their effects. As long as the amount of 'savings' expected from reduction and avoidance of losses exceed the additional investments in risk management and improved resilience, one ex-

pects the total costs to decrease in the long term, and the many negative consequences of business interruptions can be reduced (see the figures 1 and 2).

At the end of the day, new aspects of risk management should be considered, for better business continuity to be guaranteed. It's no longer about familiar risks arising from nearby, domestic sources. Risks have increased and become more complex as our globe has shrunk, so resilience is a key concept for ensuring ability to endure, that the firm can absorb those shocks that cannot be expected. ■

Miikka Mäkilä
Master's Thesis
worker





Rudnitsky: How to make a good business continuity plan

"When I conduct a risk survey on site, I usually ask a client whether they have a continuity plan. In reply, I am often asked what I mean. Therefore, I am going to describe the main steps to make a good business continuity plan, and describe the most essential issues to maintain the plan effectively."

"THE BIGGEST RISKS we worry about are often property risks such as fire, power failure, blizzard, hurricane, flood, acts of terror or earthquake. When you think about any of the above risks, imagine that you have to act in these circumstances to save the business you are responsible for. Plan what to do before, during and after the incident. Think what you would do with your supply chain and your customers. How to provide your site with crucial utilities, e.g. electricity, fresh water, heating in wintertime, etc.

Site level business continuity planning starts on a grass root level, and with very practical actions. Begin your equipment continuity planning by gathering identification data for critical equipment. Keep technical manuals for vital equipment readily available, and maintain a list of employees knowledgeable about the equipment. Incorporate information on suppliers and

transportation companies; special rigging (building modifications), including the use of cranes, helicopters, bridging, highway or rail access.

Know the suppliers of your equipment in order to have options, e.g. order or lease new equipment or buy used. Keep in mind terms of delivery – time, customs procedure, payment method – to evaluate the restoration period realistically.

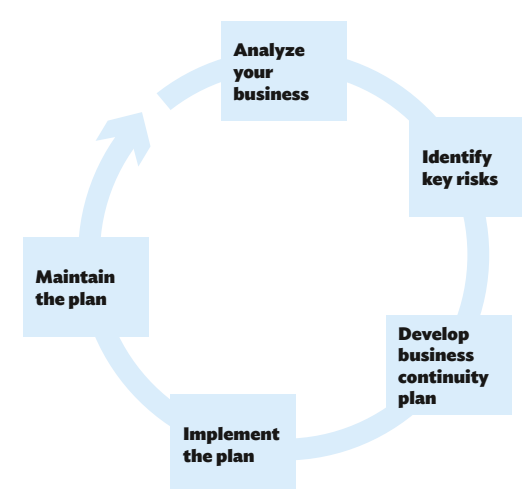
People are one of the most important part of business continuity management maintenance. All departments of the unit should be involved in planning. Each employee and department must have clear responsibilities and back-up people. Moreover, perhaps the most important part of business continuity management is regular emergency drills and trainings.

Nowadays data is a very valuable resource. Prevent your data from being damaged or destroyed by proper arrange-

ment of archives. Make regular back-ups and store them in a separate place, e.g. a bank or distant office. Test back-ups regularly. An IT continuity plan is a separate business continuity plan, which should be produced by your IT department.

The best practice approach to business continuity planning is to produce the plan as concrete step-by-step instructions. Put your plan on the intranet for the appropriate people and provide them with one or two hard copies. Again, regular trainings make the plan effective indeed.

Anatoly Rudnitsky
anatoly.rudnitsky@if.fi



In principle the process is similar, but it takes place on a wider scale – sometimes even worldwide. Everything starts with analysing your business and identifying key risks on a group level. The information obtained is the basis for developing your corporate level business continuity plan. Both the thorough implementation and continuous maintenance of the plan are vital parts of proper business continuity management. On a group level the maintenance process has to adapt to changing conditions in reality, e.g. changes in production on different sites, organizational changes, mergers & acquisitions as well as other changes in the surroundings.

Rastas-Jansson: Rules of thumb for group level business continuity management

Why is corporate level business continuity management so important nowadays? Both internal and external supply chains get longer and more complex; more value is added in the chains; world scale concentration of knowledge and resources increases vulnerability of individual businesses. As a result, consequences of dependency business interruption can be severe and extraordinary, so it is crucial to build your business resilience on the corporate level.

"IN THE PREVIOUS article we stated that site level business continuity management starts from very practical, grass root level actions. What is the difference between site level actions and corporate level business continuity management?

It is hard to give generic instructions regarding group level business continuity management that would suit all companies. There are many different kinds of structures and dependencies within different corporations, so the totality is almost always unique. Sometimes one or a few of the sites in the group are the sources for raw materials or semi-manufactured products for the other sites. Sometimes there are more steps in the internal production chain of the group: one of the sites could be the main source for raw materials for only a few other locations, which then are the hubs for semi-manufactured products for the third level, and so on.

The dependencies might also constitute a complex network: the cash flows and real flows can be more of a mixed picture. It is of utmost importance that highly interrelated business with dependencies within the group is properly mapped, and especially the profit making mechanism of the group is identified. Even though site level business continuity planning shall contribute also for this group level target, it is possible and even likely that the site management is not aware of group level impacts or strategic decisions. So, this is specifically a task to be done as part of group level business continuity management.

What could then be practical advice for group level business continuity management, regardless of the structure and width of the group? Here are some rules of thumb to consider:

- Analyze and identify both real flows and cash flows of the company.
- Quantify the risks.
- Concentrate on the critical dependencies.
- Clear framework and limits are needed for external and internal dependencies.
- Adapt to changing conditions.
- Site level business continuity management constitutes the foundation of good corporate level continuity management.
- Group level business continuity management is critical to the resilience of the company.

In practice one has to be able to combine the following things: technical and financial expertise; site and group level knowledge; risk management and business. Keeping in mind that business continuity management is part of strategic management helps reach for this goal also in the everyday business operations.

Laura Rastas-Jansson
laura.rastas-jansson@if.fi



Koskenkari: How to prevent fires

A major part of the largest losses insurance companies face is fire. The fires cause big property damage, but increasingly also severe business interruption. At the site level the consequences of fire can be drastic.

HOWEVER, THE POSITIVE feature regarding fires is that these losses can be effectively prevented and limited with good fire protection in place. Such fire protection is a part of good resilience of companies and their sites.

The typical comment regarding fire protection is that it is ensured by fulfilling the requirements set by authorities, or by good availability of local fire brigades. However, the main focus of authorities – and for a good reason – is always to ensure the safety of people and environment, not to ensure the safety of property. Also the actual response times of fire brigades are often much longer than assumed. Therefore, companies should also put their own focus to ensure efficient fire protection at their sites. That is essential to avoid unforeseeable financial losses and to ensure the stability of the business, but also e.g. to ensure limited recovery times and the future of individual sites.

Fire losses can be prevented by preventive and protective methods. Preventive methods, like fully non-combustible constructions and raw materials, which just make it impossible for a severe fire to occur, are always preferred. However, due to practical reasons these methods often cannot be fully applied. Therefore, the focus often must be on protective methods.

Based on loss experiences, in an event of fire, passive and active fire protection are usually more reliable than human behaviour. Therefore, protective measures based on passive and active fire protection systems, as well as on au-

tomatic functions of process equipment, should normally get high priority. The most important passive fire protection is good structural protection preventing fires from spreading from one fire section to another. This can be ensured by non-combustible constructions and reliable, adequately rated fire walls and fire doors. On the other hand, the most important active fire protection systems, like adequate sprinkler protection, as well as automatic gas extinguishing and smoke detection systems ensure fast and efficient response in an event of fire, limit the loss and give valuable time for fire brigade to tackle the fire.

Regardless of structural and active fire protection, human element based fire safety also has its significant role in ensuring good fire protection. Typically this means various types of procedures and practices to ensure the availability and reliability of passive and active fire protection systems at all times. These procedures should cover e.g. adequate control of structural fire protection, fire detection and extinguishing systems, control of ignition sources and hot work permit procedures, as well as regular fire safety training of all employees and contractors.

Considerations regarding fire protection should be a part of all investment projects. Implementation of adequate fire protection is always more profitable to do as a part of investment projects than later in on-going sites.

Matti Koskenkari
matti.koskenkari@if.fi



Stora Enso back to business in record time

Violent explosion in the black liquor recovery boiler at the Skoghall mill brought production to an abrupt halt. Stora Enso set up a structured project organisation which enabled it to get production up and running again as planned.

The Skoghall mill, near the town of Karlstad in Sweden, produces one sixth of the world's packaging board for liquid products. On 21st January this year, one of the recovery boilers exploded and the entire mill had to be shut down.

Extensive repair work was carried out by a total of 100 people working in two shifts round the clock. The restoration process involved many stages. As well as repairs to the boiler, it included a tremendous amount of scaffold erection and insulation and lagging work. Once repairs were completed, the boiler was inspected and a risk assessment was carried out.

"When you realise the potential consequences of the risks, a great many thoughts go through your mind. We set up a kind of temporary organisation to deal with the damage and appointed one project manager for the reconstruction work and one to identify the cause of the accident," says Hans Holm, Production Manager, recovery area at Stora Enso.

The response from our suppliers was fantastic too.

"An incident like this is not easy to deal with single-handed. All of us were determined to get on and "see this through". In this situation, there is no time to get angry or start playing the blame game. It's a serious matter and you need to make wise decisions and act upon them," says Hans Holm.

Thanks to some real detective work, it was possible to see exactly what caused the explosion. It turned out that water had leaked into the boiler from a scrubber system, which is designed to recover off-gases from the process.

It was initially projected that the repair work would take 18 days. The recovery boiler was back in business on the 18th day.

"The co-operation was very good and it is satisfying to achieve a good result together. Everyone has done an amazing job!", says Victoria Thomasfolk, Loss Adjuster at If.

Jessica Balksjö
jessica.balksjo@if.se



KRISTINE BIRK WAGNER
Nordic Head of
Casualty & Marine
Underwriting



ANDERS RØRVIK ELLINGBØ
Head of Risk
Management Services,
NOR



JAN-ERIK FREDRIKSSON
Nordic Head of
Motor Claims



ODDMUND BLEIE
Leader of Industrial Very
Large Claims Team



HÅVARD THEVIK
Head of Property
Underwriting, NOR



SALLA LIND-KOHVAKKA
Health & Safety RM
specialist, FIN



ANNE NEGÅRD
Head of Sales and
Client Servicing, NOR



TOMAS RYDBACK
Head of Marine
Underwriting, SWE



ROLAND MÖLLER
Head of Sales and
Client Servicing, FIN



ANNA APELQVIST
Liability Underwriter,
SWE



VILLE NIEMELÄ
Employee Benefits
Underwriter, FIN



PHIL SALT
UK Branch Manager

"The tests show that stone wool panels offer significant better fire protection."

