

OTHER HIGHLIGHTS



NEW fire protection guide in modern building construction for professional builders
THE NEXT PAGE



Fire tests in the new Hanoi laboratory accredited by Fire Safety Engineering Laboratory, Vietnam **PAGE 6**



PROMATECT® 100 high insulated and flexural boards for ceilings and partition systems in Australia **PAGE 8**

PROACTIVE FIRE TRENDS

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PROACTIVE FIRE TECHNOLOGIES HALF-YEARLY

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A day in the life of an underground rail system, a stadium and a hospital –

Purpose-built structures need proven, *proactive* fire protection strategies

The time is now. The place is anywhere. In thousands of crowded, dynamic cities across Planet Earth the future has arrived. There's no more space. The Big Squeeze is on. Competition is high for services and facilities. It's stressful and certainly not getting any easier as the centrifugal pull of cities attracts more and more people. Despite all the problems, many citizens are happy to call cities and their built environment nothing less than "Home. Sweet Home"! The issues are complex but the fact of the matter is simple, these days the built environment has to do more, much more, for a greater number of citizens and with greater levels of safety.

Not surprisingly the built environment is subjected as never before to extraordinary demands. People pressure, environmental challenges and daunting risk management concepts are just a few of many. Architecture, engineering and construction must therefore focus on integrating successful buildings with surrounding infrastructure. All must be designed, holistically if possible, for optimum comfort, efficiency, safety and ease of use.

To achieve and sustain these objectives, planners and downstream suppliers alike are expected to go well beyond the guidance of regulations to apply the benefits of their accumulated experience, professional skill and a large measure of creative imagination to the whole process of making the built environment a better and safer place to live and work in.

A recognised industry leader in the business of fire science technologies, like Promat International Asia Pacific, for example, is well-positioned to do just this and more. Our accumulated expertise means that we talk the language of protection very well indeed. Effective fire safety for Underground Rail Systems, Stadia and Hospitals are just three good examples of many.

CONTINUED ON PAGES 4 & 5



Courtesy of Promat B.V.



Courtesy of Promat GmbH

Promat fire resistant glazing systems prove to be exceptionally practical in these installations within a hospital (above), stadium hall (left) and underground railway station (below).



Courtesy of Promat GmbH

Suitable for use in 13 countries across Asia Pacific: Australia, Brunei, China, Hong Kong, India, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam.

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THE NEW PROMAT 2007 YEAR PLANNER WALL CHART

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Important industry manual reviews basic principles of fire engineering –

Updated edition of Promat's "Fire Protection Guide In Modern Building Construction" now available

As the move of regulatory agency recognition away from prescriptive building codes to performance-based codes gathers momentum, the need for integrated, comprehensive and widespread fire engineering strategies to assist in the design, construction, protection and smooth functioning of buildings becomes more apparent and essential.

It is true that while the probability of fire can be dramatically reduced, the total elimination of all fires is all but impossible. However, the use of a widely acceptable Fire Engineering strategy from the outset of any building project can address many fire and safety issues in cost-effective ways.

Promat International Asia Pacific, a fire protection industry leader and long a proponent of scientific fire engineering principles, recently issued a new edition of its manual, "Fire Protection Guide In Modern Building Construction".

This up-dated, richly illustrated and easy-to-use booklet examines the main principles of fire safety engineering while offering concise, insightful information aimed at reducing the destructive forces of fire. Acceptable fire engineering strategies are based on an understanding of the following:

An overview of fire

A precise but thorough understanding of fire, its characteristics and its forces is essential to anyone interested in fire science. The Fire Protection Guide In Modern Building Construction looks at the causes of fire, how it is classified and how fire hazards are categorised. Fire growth and spread, fire loads and reaction of materials to fire and the resistance to fire of various elements of construction are also reviewed. This opening section is concluded with a general review of fire safety in buildings and the use of passive and active fire protection systems.

Means of escape

All buildings must be designed in a way that allows occupants to escape in the event of fire. The number of exit points and their location is therefore critically important. Similarly, factors such as escape options, travel distance, protected escape routes and lighting and signage provisions also play significant roles in fire engineering.

The principles of compartmentation

Compartmentation works on the simple principle of designing and building a structure as compartments – constructed with the fire resistant material – that inhibit the spread of fire, smoke and toxic gases from one part of the building to another. Building occupants have more time to escape, fire fighters have more time and safety in which to save valuable property. While the significance of compartment size and construction requirements are reviewed, important information on openings, penetrations and seals, external fire spread, cavity barriers and the protection of essential mechanical and electrical services rounds out this section of the Fire Protection Guide In Modern Building Construction.

Structural fire protection

How various structural building materials perform in fire situations and to how best protect these essential building components are given considerable attention and illustration.

Active fire protection systems

The fire sciences world is divided into two complementary forces of protection, so-called passive fire protection and active fire protection systems. Effective fire engineering is predicated on a combination of both. However, this chapter of the Fire Protection Guide In Modern Building Construction looks at fire detection via manual and automatic systems and smoke, heat and flame detectors. Common means of fire suppression covering first aid appliances, hose reels, portable fire extinguishers, automatic suppression and sprinkler systems, gaseous systems, foam, dry powder systems are concluded with advice on system reliability.

Smoke control

Most fire fatalities are the direct result of smoke and/or toxic gas inhalation. Therefore, a building's design ability to inhibit and control smoke and gaseous emissions is vitally important to occupant and firefighter safety. Factors such as ventilation, pressurisation and smoke extraction are given extensive space in Promat's new booklet. Smoke control in high rise buildings, car parks, shopping malls and atria, large enclosed spaces and basements is concluded with fire resistance of ductwork and accessories.

Provision for rescue and firefighting

In the event of fire, the ability for rescue and firefighting personnel to get into the building and effectively use uninterrupted essential services is, in many cases, a simple matter of life or death. External access, the number and position of firefighting shafts and lifts as well as fire hydrants are all examined in detail.

Fire test standards

There are many standards but the worldwide fire protection industry generally tends to recognise the relevant British Standard, International Standard Organisation, European (CEN) and American (ASTM) Standards international benchmarks. An outline of insurance standards, standard tests and standard fire curves used in the industry is included.

Last but not least, key aspects of fire safety

The final section of Promat's new Fire Protection Guide In Modern Building Construction looks at many of the key issues of fire engineering that are often overlooked, with tragic consequences. Fire safety management (including a general overview, the purpose of current fire safety manuals, practical aspects of safety and maintenance) and the practical aspects of fire safety (covering possible building alteration and amendment, distance from site, traffic and access and the availability of water) are all reviewed. **PFT**

For a copy of Promat's new "Fire Protection Guide In Modern Building Construction", please be sure to complete and fax/mail the **ENQUIRY FORM** on page 7.

POINT OF VIEW

Let's face it, smoke is amazing stuff. It's used amongst other things for defense, pest control and communication. It's employed in cooking, as food preservative and as a flavouring agent. Certain healing processes use smoke medicinally and it has symbolic significance in some religions. It is even said to have some so-called recreational uses. On the other hand, as professionals in the fire protection business we know it can be incredibly dangerous.

We invest considerable time and resources in understanding fire and smoke, their behaviour and characteristics, how they can be controlled and suppressed, and ultimately eradicated.

This and our on-going R&D initiatives makes Promat a worldwide business leader. We continue to devote much to persuading government agencies, industries, developers,

When smoke gets in your eyes

architects, engineers and others that more rather than less fire protection is better for everyone.

At the other end of the smoke and fire spectrum, when large parts of our region are swathed for weeks on end in a thick, choking blanket of

what is now known euphemistically as "The Haze", we are not surprised see that international investment, tourism, transportation systems and public health can also be the victims of smoke.

Fittingly, we open this issue of PFT, our 18th consecutive regional newsletter by the way, with a look at how Promat products and systems can be of huge and lasting benefit to three highly specialised niche markets – Underground Rail Systems, Hospitals and Stadia – where the control and extraction of smoke is critically important to life safety.

Our page one story looks at the obvious need for these purpose-built structures to be provided with the highest

possible level of fire protection, regardless of the state of the local building code stipulations. This well illustrated review continues on pages four and five.

On page two we provide a review of the new edition of Promat's Fire Protection Guide In Modern Building Construction. This has additional material and looks at all the design issues, products and systems involved in the process of making the built environment adequately fire protected. The compact reference manual is available from Promat companies around the region and I urge everyone to add a copy to their reference shelves. Its useful information will be relevant for some time to come.

For page six, we look at the overall fire protection climate in Vietnam with a particular focus on the development of a special Fire Partition System for that fascinating, dynamic and emerging country. Promat was very pleased to be involved in recent fire tests in a new Hanoi laboratory. It is clear that Vietnam will eventually go on to achieve considerable success in the Asia Pacific market.

Page seven features our usual multilingual business friend, summarizing this issue's important stories while page eight reviews Promat's new PROMATECT® 100 board as used

so effectively in ceilings. There's a sidebar here on Australia's government-private sector initiative, the Green Building Council of Australia. Promat is definitely in agreement with sensible, continuing green legislation wherever applicable. We actively support council membership in this environmentally-concerned organisation.

When Jerome Kern and Otto Harbach wrote "Smoke Gets In Your Eyes" for a hit Broadway musical they were alluding to the bittersweet uncertainties of love. When smoke gets in our eyes, we are reminded how much work remains to be done and indeed of the abundant business opportunities that are available for integrated professional fire protection systems in the Asia Pacific region.

By now you will have noticed the "New Look" graphics of PFT. It is young, fresh and optimistic, a wonderful reflection of the times we live and work in and the people and organisations we are privileged to work alongside. We have every reason to stay resolute, up-beat and very confident.

Erik D. van Diffelen
Managing Director
Promat Asia Pacific Organisations
Last quarter 2006



9mm PROMATECT®-H cover strips and sheets installation on the first side of the 90 minutes wall in Alexandria, Sydney Warehouse.

Far left: For the lift shaft, 90 minutes wall using PROMATECT®-H 2 hours wall i.e. 9mm + cover strips + mineral wool. The steel supports were protected for 90/90/90 using 20mm PROMATECT®-H in 2 layers.

Below: Steel erected for the 90 minutes wall. It is important to note that structural steel within the wall cavity is clad separately.

First time experience wins “thumbs up” approval for Promat – PROMATECT® systems protect Alexandria, Sydney warehouse

Not so long ago, the inner Sydney suburb of Alexandria was considered “the Birmingham of Australia”, producing everything from bricks to aircraft. Re-zoned on a number of occasions, Alexandria today represents a typical urban cross-section of this cosmopolitan country’s light industry and residential balanced by a dash of Asia Pacific seasoning, all within a stone’s throw of the centre of this wide land’s biggest urban conurbation.

However, despite its relative spaciousness, the feel and texture of Alexandria remain undeniably light industrial. A case in point is the warehouse recently given a thorough Promat fire resistant upgrade.

The latest structure on a busy corner in the heart of Alexandria was originally built in the early 1980s and previously used as a hardware wholesalers facility with a small office on its mezzanine floor.

Located a 5 minute drive from Sydney’s domestic airport and an easy 10 minute walk from nearby suburban Greenway Square railway station, the site’s neighbours consist of an electrical wholesalers shopping complex on one side and a small factory manufacturing dental products on the other.

The building has morphed once more, with a little help from Promat of course, into a Home Ideas Centre where industry players and members of the public can view products and systems relevant to their various projects.

Engineer requests, PROMATECT® solutions

When the engineer requested 3 hour (180/180/180) solutions for wall, structural steel and masonry wall upgrades for this hardworking two floor structure, Promat responded with PROMATECT®-H and PROMATECT®-L respectively.

The project’s Building Code Australia consultant, subsequently reduced fire rating requirements to 90 minutes (90/90/90). As a result, Promat was able to adjust its solutions to PROMATECT®-H for the walls, PROMATECT® 250 for the structural steel protection and PROMATECT®-H for the masonry wall upgrade.

The engineered solution was approved under the provision that the area of compartmentation was brought under 2000m².

PROMATECT® 250 for structural steel protection

PROMATECT® 250 was presented to the engineer as a new and innovative way of protecting steel for up to 2 hours with a single layer of board, an advantage quickly endorsed by the project’s contractor.

Although aesthetic finish was not a primary concern, PROMATECT® 250 provided this Alexandria building site an outward finish similar to plasterboard. The fact that it could be used as a finished product received positive recognition by engineer and contractor alike.

The 90 minute steel protection included 20mm PROMATECT® 250 and 15mm PROMATECT® 250. In fact, 20mm PROMATECT® 250 boards were used for all steel protection in order to maintain one board thickness through this part of the project. They were fixed with screws to a framework of angles.

PROMATECT®-H protection for lightweight wall

The compartmentation specification meant that a 90 minute ‘L-shaped’ wall (in plan) around the rear roller door measured 22m x 8m high. The design therefore needed 9mm PROMATECT®-H cover strips, 9mm PROMATECT®-H sheets, steel studs with track and dual layer infill of 80kg/m³ x 50mm thick mineral wool.

Masonry wall upgrade and lift shaft protection

On the mezzanine level, a 1 hour brickwork wall upgrade to 90 minutes was achieved by using a single layer of 12mm PROMATECT®-H board fixed to the brickwork onto top hat sections.

The lift shaft of Alexandria project also needed to be protected for 90 minutes using the same 9mm PROMATECT®-H 9mm protection as the walls.

Minor steel protection of 90/90/90 was also applied to the support structure, using 20mm PROMATECT®-H in two layers.

The impact of delivery

Due to time and on-site space restrictions, as well as the planned installation schedule, the fire rated materials needed to be ordered and dispatched to site according to a delivery timetable that benefited all concerned parties. Orders were placed at regular intervals over a period of about 5 weeks.

In all, the Alexandria warehouse project used 72 sheets of 20mm PROMATECT®-H, 200 sheets of 9mm PROMATECT®-H, 154 sheets of 12mm PROMATECT®-H, 53 sheets of 20mm PROMATECT® 250 and 180 packs of 600ml PROMASEAL® AN Fire Rated Acrylic Sealant. The 9mm PROMATECT®-H cover strips used in the project were cut and installed on site.

For some of the contractors, this was a first experience with Promat systems, so regular site visits dealt efficiently with concerns and questions that arose from time to time.

Material finish and a good working relationship

No finishing was required as the Alexandria warehouse project employed a large suspended ceiling to conceal the roof space where the majority of the steel protection was installed. At mezzanine level, walls were sheeted with a decorative board. Walls at warehouse level received an MDF fascia.

Throughout the project, Promat Australia worked closely with the on-site contractors installing our systems. There was only one comment and that was concern about dust when the board was cut. This was minimised on site by using specialised cutting saws with a dust extraction system. Regular cleanup and the use of respiratory masks ensured a safe working environment. In fact, the contractors commented on the ease of handling and fixing of the boards.

As the customer had limited space for the working of the boards, cover strips for the 90 minute wall were cut to size off site by Promat Australia. Delivery usually occurred next working day, earning additional kudos for reaction speed and the possibility of repeat business in the future.

In total the contractor took five weeks to complete the fire rated component of the project. **PFT**



Above: Upgrade of 1 hour brickwork wall complete using 12mm PROMATECT®-H fixed to one side only. The structural steelwork above the wall is protected with 20mm PROMATECT® 250.



Above: PROMATECT®-LS self-supporting ductwork in Arena Düsseldorf, Germany.

Left: Neubrandenburg Church, Germany, was rebuilt to a concert stadium hall using construction of PROMAGLAS® walls and doors.

Below and right: Construction of glass walls and doors made of PROMAGLAS® for hospital nurse place in Germany.

All images courtesy of Promat GmbH



PROMAXON® Technology PROMATECT® 250 board is the choice for structural steelwork claddings in Norwich Football Stadium, UK. Image courtesy of Promat UK Ltd.



SYSTEMGLAS® construction of screens and doors for University Medical Centre, Groningen, The Netherlands. Image courtesy of Promat B.V.

CITYSCENARIO 1

Riding the underground railway system

Morning peak hour. The daily grind of beating the clock begins. Millions rush helter skelter to schools and places of work. We commute on foot. Bicycles. Motorcycles. Cars. Buses. Trains. Boats and planes. Anything that moves. Make no mistake, more Citizens Of The World are on the way in search of a better life, overwhelming demographers and perhaps even the ability of cities to cope. It's hectic and, looking at traffic conditions amongst other "better the devil we know" situations, it could be better. The future, however, is full of tantalising promise for many.

But on the whole, it could also be a lot worse because, with some vision and a dash of timely urban planning, many cities function pretty well, even if the morning rush hour scene repeats itself each and every evening. Everywhere. Worldwide. Five days a week, 52 weeks a year. Unrelenting. Stressful. Dynamic. Little wonder that many sprawling urban conurbations feel like they've already reached saturation point.

To meet the basic needs of increasing numbers of people, the pressure is on governments to build sensible People Mover transportation alternatives. The viability of highly sophisticated above and underground railway systems gain popularity, despite hefty price tags.

CITYSCENARIO 2

Huge crowds enjoy sporting history at new stadiums

Sports these days is Big Business getting bigger and much more demanding in a world of international mega sports stars and increasing audience expectations. Right now, across town (or indeed across the world) there's an

"intelligent" structure, able to adapt quickly to changing weather and crowd conditions while efficiently meeting sports-specific needs and media demands.

As it happens, this event is Sold-Out with an audience of 50,000 ticket holders.

Protection for sensitive transportation systems

At Promat, we try look at the development of the underground railway systems' overall fire safety strategy, firstly from a holistic point of view before assessing the individual, integrated parts of that strategy. The latter will include examination of the overall concept, the type of design fires used to determine the smoke extract design, egress calculations, fire fighting access and of course the design of fire systems.

At the same time we also look at the civil and structural design, tunnel ventilation, electrical, mechanical and public health systems, fire detection and prevention. We are particularly mindful of the level of control and suppression of fire and smoke spread, using the principles of compartmentation and the means of escape as well as access for firefighting.

The *proactive* protection of steel and concrete structural elements in MRT systems above and below ground is a key area of concern and a particular Promat specialisation. We also provide strong support for the effective fire rated protection of ventilation shafts and air conditioning and ventilation ducting systems, fire explosion and smoke barrier panels for electrical substations and control boxes as well as partitioning systems for passageways and link walkways.

international sporting event scheduled for a huge, new state-of-the-art stadium. It's an

Millions, perhaps even billions more expect to watch "Live" via worldwide global satellite broadcast. Huge pressure for the people involved but even more pressure for the stadium venue to function smoothly.

Thanks to clever and effective marketing, sporting events attract ever increasing crowds. The people pressure on sporting facilities everywhere, especially stadia is enormous.

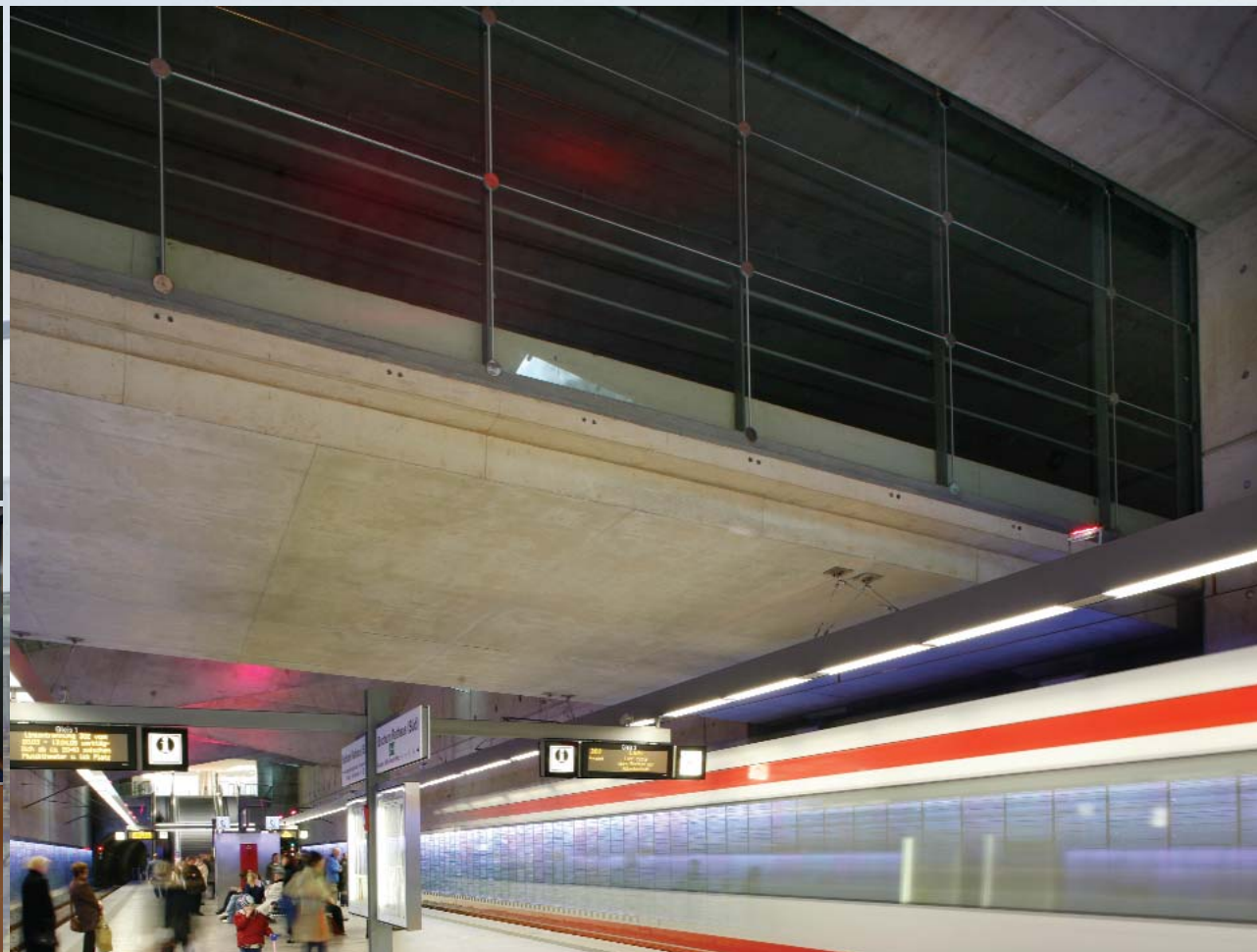
Getting people to these events, keeping them entertained and ensuring their safety is an alchemy of equal parts demanding science and highly developed art. In terms of risk and security management alone, the functionality of a modern stadium is incredibly complex, balancing spectator safety with innovative, economic design.

Multipurpose functionality expands safety definition

Given the costs involved, many stadia these days have to perform as multi-purpose spaces in which a wide variety of activities, such as different sporting events, musical concerts, exhibitions and conventions can take place.

This multipurpose dimension is a problem in itself due to the very large number of members of the public likely to be present. Their evacuation in an emergency and the increased risk of fire represent potential and significant safety problems. Investing a high level of functional protection into the design and build of a stadium is therefore essential.

In fact, the very nature of many of these multipurpose buildings is so complex that conventional fire safety requirements can not always be met. However, enlightened fire safety engineering principles, with special emphasis on the principles of compartmentation can be used to ensure that fire safety is provided in an efficient and cost effective manner.



PROMATECT®-LS self-supporting ductwork in Arena AufSchalke, Germany. Image courtesy of Promat GmbH



Above: PROMAGLAS® screen with lightning of changing colours for Bochum Metro Station in Germany.

Left and below: PROMATECT®-LS self-supporting ductwork in City Palais Duisburg, Germany.

All images courtesy of Promat GmbH



PROMATECT®-H boards are extensively used for the suspended ceilings in Ipswich Football Stadium, UK. Image courtesy of Promat UK Ltd.

A company like Promat looks at the overall concept of fire safety in a stadium, ever mindful of the fact that people management is a key aspect of fire safety in buildings containing large numbers of the public.

Promat products and systems are frequently used in a stadium's structural (steel and concrete) protection and in the high impact areas of access and evacuation egress. Promat is also extensively employed in "back of the house" operations such as protection of airconditioning and ventilation ducts, fire barrier panels for electrical substation and computer facilities which power and control most of the hardware facilities that are the lifeblood of many stadium performances.

Hospitals must ensure that appropriate operational readiness measures are developed, implemented and reviewed on a more or less constant basis.

These also include fire emergency management and evacuation procedures, as well as the training of staff to implement the procedures that are developed in the interests of the hospital, its patients, staff and the community the hospital serves.

Specific fire protection for functional readiness of all hospital areas

Promat International Asia Pacific has considerable experience with fire safety in hospitals. Wherever possible we analyse fire protection for hospitals holistically and then look at the integrated, component parts that give a hospital readiness through systemised and functional fire protection.

In the event of fire, it is difficult if not impossible to move patients from intensive care units and geriatric wards. Promat fire systems can be put in place to ensure the integrity of these areas while also protecting cabling systems that power life support systems to ensure these will retain their full functionality under fire conditions.

CITYVISION 3

Reducing risk and maximising healthcare in sophisticated hospitals

Fortunately, modern hospitals are a fact of life and a feature of cities and most modern built environments. Indeed, a reasonable quality of life might be considered impossible without them. As the world becomes a smaller place, the significance of hospitals is likely to increase in importance.

Hospitals not only represent a benchmark for high standards of public health but also the quality of medical and scientific facilities available to the people who need them. As such, hospitals have to comply with all the laws related to health and medicine as well as general safety and fire protection.

Similarly, patients cannot be suddenly moved from operating theatres. The integrity of these areas against the ingress of fire or smoke, while also providing a safe and sterile environment, must also be considered, particularly in the construction of all ceilings, floors, walls and doors with dedicated Promat products. Promat can also protect the supply of power to an operating theatre's life support systems which have to remain uninterrupted throughout a fire emergency.

In fact, most routine operational matters in many modern hospitals rely increasingly on computer networks. Server rooms should be provided with superior Promat fire protection to avoid total data loss in a fire situation. While computers unquestionably make routine hospital tasks considerably easier, they also require mountains of data cabling. This often located beneath raised floors or above suspended ceilings, areas which provide a very convenient and rapid transportation system for the spread of fire and smoke. Such areas should be compartmentalised to prevent fire and smoke spread and the cabling given extensive protection within fire rated boxes and barrier panels.

The important hospital kitchens are without doubt, especially from a fire protection point of view, areas of extreme high risk. They must be compartmentalised to ensure the suppression and containment of fire and smoke spread from within the kitchen to the rest of the hospital. Kitchen extraction ducts should be fully protected and doors be made fire resistant, all as a matter of standard operating procedure.

Effective fire protection also provides very reassuring benefits to other back-of-the-house operations. These include the hospital's transport areas (public car parks and ambulance bays), power generation facilities (fire and blast resistant and acoustically proficient enclosures for the hospital's back-up electrical supplies), highly inflammable fuel and gas storage facilities (for emergency vehicles and medical gases) must all be made secure.

Drug storage areas and secure areas such as psychiatric wards, for example, are also high risk areas in the event of fire and definitely benefit from the application of effective fire protection measures.

After all, as a worldwide leader in *proactive* fire protection products and systems, Promat International Asia Pacific understands better than most that special, purpose-built structures like hospitals, sports stadium and MRT systems need proven, proactive fire protection strategies to operate efficiently and in optimum safety. **PFI**

Promat participates in Vietnam's first official fire tests –

New fire lab helps set pace for Hanoi's fire regulations

Fires know no boundaries. The major losses that rampaging fires cause and the inherent environmental and social impact they have in any part of the world affects each one of us, one way or another. The need to manage fires in ASEAN as elsewhere should be a priority.

Comprehensive, concerted and cooperative efforts are now required to ensure that adequate resources, technology and commitment are deployed to meet the challenge head on.

In rapidly developing countries, the mix of old and new, heritage buildings alongside sleek ultra modern designs do not always fit together harmoniously. Infrastructure development tends to fall well behind redevelopment of whole city blocks, creating the impression of a chaotic approach to life safety. Indeed, in modern building design, one of the most important issues of life safety is that of fire safety.

Although fire and security regulations are often applied in an arbitrary fashion, the Vietnamese Government continues efforts to increase security in public areas. This policy is most notable at airports, governmental and corporate buildings as well as at foreign and international organisation sites.

However, when a fire started recently on the second floor of the Saigon International Trade Centre in Ho Chi Minh City, at least 59 people perished and 120 injured in the following blaze. Eye-witness accounts indicated that the fire broke out at 1.45pm when the building was crowded with visitors.

Many people were injured when they tried to escape the inferno by jumping from the building. Despite the large number of firefighters, strong winds fanned the flames to spread quickly to the upper floors of the building.

The fire was the largest in Ho Chi Minh City during 2002, a year which saw at least 147 fires, 14 fatalities and damage in excess of VND21 billion (US\$1.36 million).



The 240 minute fire test on Promat penetration seal systems.

Great progress to address issues of building safety

Statistics from the Ho Chi Minh City Fire Department indicate that electrical problems are the main cause of about 50 per cent of the fires. They also state that many of the fire victims pay little attention to fire regulations. Many of the properties affected by fire frequently house large volumes of flammable materials such as paper and wood.

Since those headlines, however, Vietnam has taken great strides to address the issues of building safety.

Using a multi-modal, multi-front strategy, the Vietnam Government is confronting the issue of life safety directly.



Full scale 3000mm x 3000mm 120 minute Promat partition system undergoing testing at the Fire Safety Engineering Laboratory in Hanoi, Vietnam.

Statistics from the Ho Chi Minh City Fire Department indicate that electrical problems are the main cause of at least 50 per cent of the fires. They also state that many of the fire victims pay little attention to fire regulations...

This article is published with the kind permission of Institute of Building Structure, Vietnam.



An enormous task lies ahead in providing not only new regulations but also the appropriate specialist education for people, architects and designers, engineers, construction companies, fire and emergency services as well as the all-important building inspection teams.

The first part of the programme aims at developing an amended building code balances the use of modern materials and modern building design concepts with existing old style infrastructure prevalent in Vietnam's major cities. The latter would be difficult if not impossible to update without great expense and upheaval.

A coordinated educational phase is scheduled to follow the updated regulations. This would provide an early opportunity to explain the new regulations in some depth to all concerned.

Training for the construction inspection teams would tie the programme together, hopefully and perhaps even quickly leading to a situation in which fire and security issues are no longer applied in quite an arbitrary manner as at present.

An integral part of the whole fire safety issue is the development of national codes and standards for testing of fire protection products and systems. This in part is based on existing ISO codes but in Vietnam also incorporates additional elements that accommodate local Vietnamese culture and needs.

Not surprisingly, standards without testing facilities are pointless. Therefore, the Institute of Building Structure (IBS) division of the Vietnam Institute for Building Science and Technology (IBST) has created a sub division, the Fire Safety Engineering Laboratory (FSE).

This new entity is fully equipped with the latest forms of material testing equipment, including full scale vertical and horizontal furnaces for testing of *proactive* fire resistant systems and comprehensive equipment for testing a wide range of materials for their reaction to fire.

The FSE laboratory has full accreditation for performing tests to a wide range of national and international standards, including ISO, EN and BS.



Under construction, a specimen for testing of a Promat penetration seal system.

Proud and pleased to collaborate with Vietnam's new testing laboratory

Promat International (Asia Pacific) Ltd., through its Vietnam office, undertook some of the first official fire tests at the new, recently incorporate laboratory in Hanoi. A 120 minute composite partition system, developed especially for the Vietnam market, and a series of Promat PROMASEAL® penetration seals were successfully tested to 240 minutes, clearly demonstrating that Promat's Australia-manufactured sealing systems more than adequately meet the requirements of the Vietnamese standards.

Promat International (Asia Pacific) Ltd. undertakes fire testing in many laboratories around the Asia Pacific region, to a wide range of standards and codes. The company is impressed by the efficiency of FSE and the lab's strict adherence to adopted standards. There were no deviations and no short cuts. All in all, the new Hanoi laboratory made an impressive debut that augers well for the country to become one of Asia top locations for fire testing. As such, it is also to be seen as a flagbearer in the Vietnamese fight against the dangers of fire in buildings. **PFT**



人口增加已经给城市的轨道交通，体育馆和医院带来诸多压力 -

构建现代城市建筑和设施需要可靠的预防火系统

大都市就像磁场一样，吸引着众多的人才和资源，每天都有无数的人们抵达，而城市也在日益扩张和膨胀。很明显，城市的建筑环境也必须比任何以往时候做出更程度的安全改善以适应人口膨胀问题。一个成功的建筑其规划、设计、工程和建造方面必须进行有机的整合以达到与周围的基础设施相协调。它的终极设计应当达到最大限度的舒适，效率，安全和便捷。今天，建筑领域的专业人士也一直在为创建一个更好更安全的工作和居住环境而努力。

保全国际（亚太）有限公司以先进的防火科技理念在业界享有盛誉，我们不但提供消防安全工程的咨询而且为建筑整合可靠的防火系统。因为我们最擅长的语言就是防火，轨道交通、体育建筑和医院领域的消防安全解决方案只是我们诸多成功经验中的三项。

让快速公交系统安全地驶向未来

城市快速公交系统（MRT）已被证实是最有效率最可靠的运送大量乘客的交通方式。尽管其地面或地下轨道交通系统造价高昂，但是世界各地仍然在纷纷兴建上马。

保全致力于优先发展MRT（快速公交系统）建筑的系统防火策略，然后才专门评估个别的或组合单元的消防安全策略。在专门评价阶段包括对全部概念的检查，如用于决定排烟设计、疏散计算、灭火路径以及防火系统的火灾设计模型。同时，其结构设计、隧道通风、机电和公共卫生系统、火灾探测预防系统都是需要进行仔细的审查。对火灾和烟气扩散的控制程度，运用防火分区的理论，以及设置人员疏散、消防人员进入路径等方面都是其他需要特别重视的方面。

对MRT建筑中的混凝土和钢结构构件进行被动防火保护也是另一个需要特别关注的领域。还有通风竖井以及通风和空调风管的防火保护，变电站和控制柜用的挡烟垂壁，和疏散通道的防火隔墙，保全都可以提供全套可靠的防火系统。

盛大赛事 = 大量观众 = 复杂高要求的新型体育建筑

今日的体育运动已经被发展为一个巨大的产业，收获名声的同时也获得巨额的利润，来自国内与国际的观众已经日益增长与膨胀。现代的新兴体育场馆建设也必须在保证观众安全方面与创新、经济之间找到平衡。

今天的体育场馆往往具有多重空间使用功能，适应不同体育运动赛事的要求，或者承担举办音乐会、展览和大型会议之功能，这一切都必须以舒适和安全为基础。由于上述使用场合都拥有大量人群，于是体育场馆的人员管理成为消防安全的一个重要关注点。所以投资建造一个具有高度可靠性的防火系统显然成为必要性。

保全的产品和系统已经被广泛地用于体育场馆的结构防火保护上，它们由于具有耐冲击的性能，可用于主要通道、疏散区域。同时，你也可以在一些不起眼的部位发现其他保全产品的存在，例如通风管道的防火保护、用于电力控制系统和通信控制系统的防火分隔，而这些部位其实已经成为现代体育馆最重要的“血液”系统。

现代医院：将风险降到最小，将呵护做到极至

在大多数现代城市中装备精良的医院是生活质量的表现。今天地球已经成为一个紧密联系的村落，医院的意义无疑在每个人心中变得更加重要，它需要做到及时响应，满足民众的需求，那么医院也需要得到有效的保护。

保全的防火系统不但保护重症病房和老年人病房，保证这些区域的电力供应系统不受火灾影响，同时通过构建可靠的防火墙和防火吊顶和防火门使得这些区域不受火焰和烟气侵袭的威胁。另外在药品储藏区域和精神患者限制区域，也运用高度可靠的防火系统来保证稳定运行。医院的厨房是需要特别进行特别防火分隔的区域，以保证其火焰和烟气不会扩散到其他区域。按照标准的操作程序，厨房的排油烟管道是需要进行完全的防火保护，而且其门体也应是耐火的。

除此之外，保全对医院中日益增加的计算机信息网络也有很好的防火保护手段，服务器房间和数据电缆需要特别有效的防火保护。其他的重要服务设施保护范围还包括交通区域（公共停车场和救护车停车场），发电设施（需要防火防爆隔声的防火保护系统以保证备用电源供应），以及易燃可燃的汽油、气体储藏区域，这些保全都可以通过创建有效的防火分隔来实现可靠的保护。PFT

保全防火吊顶

成功应用于北京地铁五号线



随着2008年奥运会的临近，东道主北京市正在加紧城市基础设施的建设，尤其是对地铁的建设。因为市政管理部门非常清楚，在国际大都市中最为可靠、便捷的交通方式就是地铁。相应而来的，地铁作为人流高度密集的公共建筑和场所，其消防安全无疑是至关重要的。

在现代地铁建筑的设计中，大量的自动扶梯和楼梯得到应用，用于乘客在地面与站台之间的交通联系方式。同时，我们必须清楚认识到，在火灾发生的时候，楼梯是人员疏散的唯一方式，所以此处的防火安全重要性是无庸置疑的。而在地铁建筑设计中，楼梯和扶梯下的空间通常被用来作为一些功能性的控制房间，例如配电间、空调机房等。所以为了使此处空间具有独立的防火性能，必须对之创建有效的防火分隔，也就是对此处的房间除了墙体为防火墙外，其斜坡式的屋顶也必须是具有高耐火性能的。在这种情况下，保全防火吊顶由于轻钢结构体系和干式作业而具有非常好的灵活性，同时又具有很高的耐火极限，从而成为业主和建筑师的首选。到目前为止，在北京地铁5号线的建设中，已经有超过3个车站大量应用具有90分钟耐火极限的保全防火吊顶。

事实上保全防火系统在中国地区以及东南亚和欧洲已有诸多成功应用案例，我们最近也特别出版了一期技术专刊，专门阐述地铁建筑中预防式防火系统的应用，请以下的 **ENQUIRY FORM** 与我们联系索取事宜。PFT

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SPECIAL ADVERTORIAL

GREEN FOR PROMAT

In September 2006, the Promat organisation became a member of the Green Building Council of Australia (GBCA), a national, not-for-profit property industry initiative. The mission of GBCA is to promote the transition of the Australian property industry towards sustainability by promoting green principles in building design, construction and operations. The same green principles are core Promat corporate beliefs.



NEW PRODUCT

PROMATECT®100 – Another new star from the Promat stable – Another phenomenal performer in fire resistant ceiling and partition systems

With the economy posting record highs in September 2006, Australia's construction industry continues its remarkable recovery. The latest boost comes as the result of a number of factors, particularly the Federal Government's grant scheme for home building in concert with a climate of low interest rates. In Victoria alone, the last quarter of the year witnessed activity worth nearly A\$3 billion.

Throughout Australia, the construction industry has finally rebounded from post GST gloom to experience a boom in activity and confidence. According to industry observers, the industry is as healthy now as it has been for a decade or so. The long term outlook is very positive. The industry accounts for some 11 per cent of Australia's GDP, with an annual output in the vicinity of A\$70 billion. Of the latter, A\$36 billion represents the residential sector and A\$34 billion the commercial and industrial sector.

In earlier times when the Australian GDP experienced a drop, a downturn within the construction industry had the capacity to strangle the economy as a whole. The knock-on effect of such a downturn was clearly apparent. If construction slowed, so did the purchase of household goods along with the fixtures, fittings and furnishings included in any new building.

By contrast, current boom times are making a significant contribution to overall economic recovery. The southern state of Victoria alone recorded its highest ever volume of building approvals.

Right choice of building materials for fire safety within the construction industry

With such solid fundamentals underpinning today's construction industry, there are few concerns regarding the ability of Australia's architects, designers and builders to produce ever more impressive constructions. All of these buildings, no matter how grandiose they may be, should all have a common element – the creation of good but safe buildings with fire safety as the single, most important factor at their core.

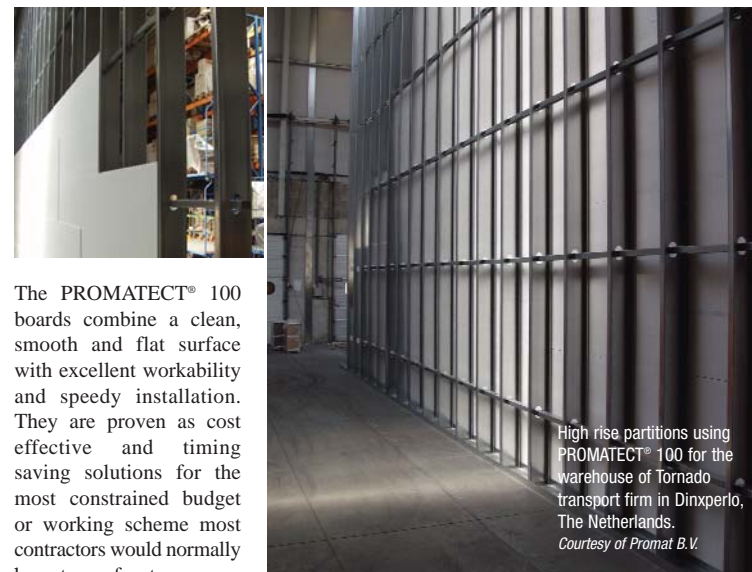
Indeed, Australia has developed elaborate legislation regarding fire-safe construction and it is this area of construction where Promat comes into the equation. The industry leader's ability to provide cost-effective solutions to fire safety issues, understand and meet the specific rules for local and national building code requirements helps developers close the gap between regulations and real life applications.

Promat provides assistance throughout the construction chain, from the design concept through to the developers and contractors. The company's involvement can ensure that correct choices are made in specifying products and systems which meet all the rigorous performance requirements of today's world. This applies not only to the fire performance of the Promat systems but is clearly linked to the environmentally friendly production methods used during manufacture. All Promat products are manufactured using ISO 9001 quality assurance controls, with ISO 14000 environmental controls in place at all factories. All products and systems are widely tested around the world, including Australia, to a range of national and international standards.

PROMATECT® 100 is the latest product to come from Promat Research and Development laboratories. This product is a derivative of the PROMATECT® 250, developed to meet the particularly fast-paced and ever challenging demands of Australia's building construction industry. Like its predecessors PROMATECT®-L500 and PROMATECT® 250, both well-known within the Australian construction industry, the manufacturing process of PROMATECT® 100 exposes the mix of raw materials to elevated temperatures and pressures to satisfactorily achieve its non combustibility, good impact and abrasion resistance, moisture tolerance, dimensional stability and excellent insulation properties when exposed to fire.

PROMATECT® 100 is in fact a hybrid development of matrix engineered mineral technology using PROMAXON® ingredients which enhance the board's superior insulation properties when exposed to fire. PROMATECT® 100 has high flexural strength and the ability to form curved linings. This new composition of hybrid board contains a key component which improves the fire insulation of the product due to an endothermic process, a process accompanied by the absorption of heat. PROMATECT® 100 therefore has better fire insulation than either traditional calcium silicate or gypsum boards, as both PROMAXON® and the mineral matrix within contain small amounts of free water which are retained to improve the insulation.

PROMATECT® 100 systems are designed to offer the contractor swift, clean and easy installation. For this reason the systems consist only of single or double layers of boards, all in the one 20mm thickness. Board dimensions of 2500mm x 1200mm. Although other thickness and dimensions of PROMATECT® 100 are available in a range of alternative systems, the use of the single thickness was determined to provide the optimum performance and keep the system designs simple. The 20mm PROMATECT® 100 partition and ceiling systems will provide up to 120 minutes fire resistance in accordance with the criteria of AS 1530: Part 4: 2005.



The PROMATECT® 100 boards combine a clean, smooth and flat surface with excellent workability and speedy installation. They are proven as cost effective and timing saving solutions for the most constrained budget or working scheme most contractors would normally have to confront.

High rise partitions using PROMATECT® 100 for the warehouse of Tornado transport firm in Dinxperlo, The Netherlands.
Courtesy of Promat B.V.

PROMATECT® 100 systems therefore benefits the construction process with:

- Superior insulation properties when exposed to fire
- Good acoustic properties
- Excellent workability – Easy to cut
- Smooth and flat at surface
- High flexural strength providing the ability to form curved linings
- Cost efficient
- Single layer constructions for steel stud partitions
- Speed of installation
- Proven cost effective lightweight drywall systems
- Lowest wall section 'footprint'
- Installation by carpenter trades
- High quality finishes

Illustration on the right: 20mm single layer PROMATECT® 100 partition system up to 2500mm height. Steel channel (below left) or board strip (below right) nogging track is recommended for partition heights up to 7800mm. [PFT]



For a complimentary copy of "PROMATECT® 100 PROMAXON® Technology – Partition & Ceiling Systems" brochure, please refer to the ENQUIRY FORM on page 7.

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