

# Promat Technology Trends

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## Does cable fire test methodology do justice to generally improved fire safety standards?

Thanks to tremendous advances in building materials over the past few decades, most modern structures in the built environment today are remarkably “intelligent”. They are easily compared to the human body, especially in this age of widespread and sophisticated Information Technology.

Nowadays, buildings live, breathe, function and work in incredibly human ways. They're certainly more energy efficient and sustainable...and in many locations they're energised by high levels of (artificial) intelligence to keep them performing at optimum levels of efficiency.

These ecologically sensible trends would not be possible without an efficient humanoid delivery system that transports vital supplies like electrical energy and digital information impulse, rather like our central nervous and arterial systems, to all vital parts of the structure.

Considerable time, money and planning is now invested in every building's essential life support systems. One of the most important of these is the structure's usually abundant cable network.

A great deal of critical attention is continually focused on the risks created by cables, and relevant risk management factors that aim to have a positive impact on

the secure and safe routine operations of most modern, functional structures. Even old buildings are full of cables which have the ability to both cause and spread fire.

Over the years, however, manufacturers have developed cables that offer performance levels that go some way in lowering the potential fire risk of cables and cable facilities.

A few of the general problems associated with fire resistant cables can be summarised as:

- **Cost**  
Can be up to 10 times greater than a non fire resistant equivalent cable.
- **Size**  
Fire resistant cables can have a far greater electrical resistance and thus require a greater cross sectional area than a non fire resistant cable to perform to a similar specification. This creates a knock-on effect, larger and stronger support systems for fire resistant cables are required.
- **Installation**  
Cost of installation of fire resistant cables plus special tools and jointing components can result in an additional 15% installation cost over standard cables.

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● **Containment**

While a fire resistant cable will continue to operate for a short period of time they cannot prevent fire entering a compartment, nor will it prevent the cross over of fire from one affected cable to an unaffected cable. Instead of losing a single cable a complete compartment is put at unnecessary risk.

● **Fibre optic cables**

Increasingly common in recent years but fire resistant fibre optic cables are not yet generally available. Their failure at significantly lower temperatures generally indicates that they too require more rather than less fire protection.

**Cables must also sustain functionality of fire and safety facilities**

Hospitals, strategically important airports and harbours, hotels, shopping malls and high rise office developments — the applications are as endless as they are vital — rely on cable networks.

In turn, entire communities, social and economic systems depend on cable networks to reliably deliver consistent energy and vital information.

It is not difficult to accurately imagine the obvious potential and impact of fire risk.

The flow of electrical current through cables generates heat. When huge numbers of cables are bundled together that heat can be considerable, creating yet another dimension of heightened risk.

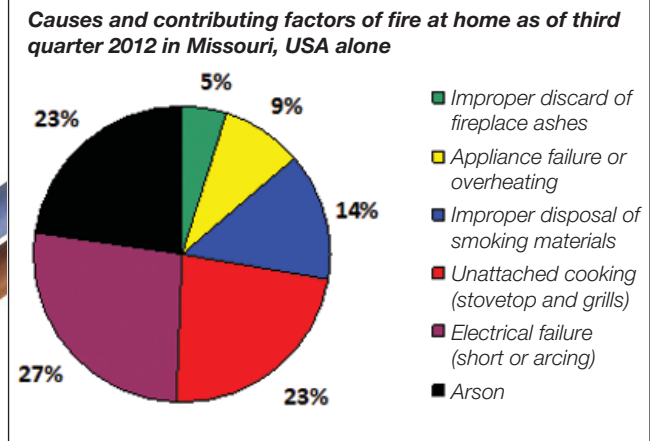
Similarly, most cable runs can be long and by necessity penetrate various fire compartments. The risk of fire spreading from one compartment to another escalates exponentially.

In the event of fire, uninterrupted power supplies are also required for essential or emergency services.

These include fire service elevators, electrically operated fire alarms and fire extinguishing installations, smoke extract ventilation systems, emergency lighting systems, public address, essential computer and information systems, and others.

All must remain properly functional for a specified period of time during a fire to create adequate time for safe evacuation of building occupants and the arrival of emergency services.

It should be clearly noted that cables alone are rarely the source of fire but they certainly can and do add to the potential for spread of flame and to the fire load.



**Electrical fault is still a major cause of fire**

In fact, worldwide statistics reveal a disturbing and continuing trend. More than 20% of all major fires are caused by electrical fault.

Fire and heat usually move rapidly along cables networks, spreading fire, smoke and fumes from one fire compartment to another.

This seriously undermines the fundamental principles of effective fire compartmentation, placing the entire structure, its contents and its occupants in harm's way.

Usually considered out of sight and thus out of mind, alarming and surprising rapidity is characteristic of fire spread along cables.

On the other hand, it is also true that in many regulatory climates, cables and their protective sheathing are required to provide certain minimum performance standards for safety.

Not surprisingly, most modern manufacturers claim to test their cables to widely accepted and interpreted international standards.

Cables and cable facilities need to be protected just as effectively as, say, partitions, ceilings, floors and the fire compartments that most cables or bundles of cables usually penetrate.

Given their ubiquitous presence and the important contribution they make to all modern buildings, it can be argued that cables, cable component materials and cable facilities justify more rather than less fire protection than usual, instead of simply relying on the face value of existing test performance data.

Modern cable networks are increasingly complex and need to be taken seriously, especially in terms of proven fire performance. The efficacy of the method of testing the fire resistant capability of cables is, however, sometimes debated.

# THE WAY OF CABLES

The cover story of this issue of PTT is all about cables and the fire protection of cables. Given the increasing complexity of modern buildings and our reliance on Information Technology, huge quantities of cables are a fact of life. Regrettably, electrical fault continues to be the cause of 20% of all building fires worldwide. It need not be so.

Many building codes stipulate fire resistance requirements for cables and most manufacturers produce cables that meet proven performance standards. However, most of these test results are usually based on a relatively short sample of cable subjected to a single flame source of intense heat from a controlled Bunsen burner. Many concerned fire science experts, including Promat, contend that this methodology rarely if ever fully replicates the conditions typical of a fully developed fire scenario.

At Promat we believe the fundamental principles of compartmentation can only be sustained when cables are fully encased in proven fireproofing material. Runs of cable can be quite long, penetrating various fire compartments. To prevent the spread of heat, fire and smoke from one secure fire compartment to another, cable enclosures therefore have to be installed with proven fire stopping penetration seal systems. Read all about contentious cable issues, right here in PTT.

In keeping with our philosophy of *innovation and sustainability*, this edition of PTT also overviews Promat Green Label Scheme initiatives, steelwork and partition protection in coal chemical plants in China and fire resistant spray applications for the award winning Frank Gehry's first residential architecture in Asia, the brilliant new "bamboo" apartment complex in Hong Kong. Read all about Promat Australia's new PROMABLANKET® system providing space and life saving benefits in a big, recently completed tunnel complex and our new Quote Steel App's current availability in both Apple Store and the Promat Information Center (PIC) at Promat-ap.com. Rounding out this issue with more on innovation, Microtherm's High Performance Insulation in a Taiwan storage facility keeps tank contents cool, rather than just insulate against heat...and that's very cool indeed!

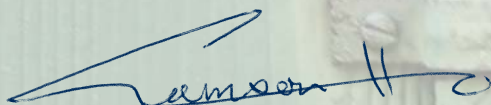
By the way, this ninth edition of PTT is our first fully digital version.

Although many readers use PTT for different purposes — as a convenient sales call aid or brand building marketing tool, for example — the decision to convert to digital was an obvious choice, in keeping with our corporate philosophy of sustainability and innovation. This trend away from hardcopy publications is likely as more of our dynamic Asia Pacific region moves to readily available digital platforms.

Don't forget, whatever its format, PTT is a functional publication for the age of accurate information. It is designed to provide useful technical, marketing and business solutions for its readers around world. As such, we would certainly like to hear what you think would be appropriate in the pages of future editions of PTT.

In the meantime enjoy a good and informative read.

Best personal regards,



Samson Ho  
Managing Director  
Promat Asia Pacific companies

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Cable flame retardant test to IEC 60332 standard

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## Most fire test methods for cables use single source of controlled flame

In force around the world and observed with varying degrees of diligence are numerous building code regulations that legislate the fire resistance competency and integrity of electrical cables.

There are also many different standards in use today and a few are accorded the status of performance benchmarks.

The most widely recognised are the ISO, IEC and UL standards. Good examples of various typical expectations of international standard compliance in the fire performance of cables are outlined in:

- Fire resistant: EC 60331, SS 299
- Flame retardant: IEC 60332, IEEE 383
- Smoke emission: IEC 61034, BS EN 50268
- Acid gas emission: IEC 60754, BS EN 50267
- Oxygen index: ASTM D 2863

One of the few fire resistance test standards specifically for cable protection systems is, for example, Germany's DIN 4102 which describes parameters in the "Fire behaviour of building materials and components", Parts 11 and 12.

Part 11 assesses the encasement system when exposed to a fully developed internal fire. The integrity of the encasement, and any penetrations through walls and floors, is measured, as well as the temperature on the outer surface of the duct (140°C mean rise, 180°C maximum rise).

The heating curve for DIN 4102: Part 11 is the same, as a matter of interest, as that in the more widely observed BS 476: Part 20. The failure criteria for integrity and insulation are almost identical.

Part 12 assesses the encasement system when exposed to a fully developed external fire. The tested encasement system protects a wide range of different cable types. Power is passed through the cables throughout the test. As well as the requirement to maintain the integrity of the encasement, and any penetrations through walls or floors, the standard requires that:

- (a) the cables continue to function for the duration of the heating period and,
- (b) the temperature rise on the cable jacket does not exceed 150°C. As a matter of interest, Promat uses a temperature of 120°C as the failure point.

The NFPA 70 National Electrical Code issued in 1996 by the National Fire Protection Association of the USA, is a typical performance based regulation.

It requires feeder circuits for emergency systems to be fire protected in many applications. One of the important requirements by NEC is that cables installed in air plenum space are to be enclosed in metal or flame resistant conduits.

Otherwise cable installations must be classified by an approved qualification agency, such as Underwriters Laboratory (UL), as fully meeting stringent plenum cables requirements and complying with UL 910. These cables must be classified as having flame resistant, low smoke producing characteristics in order to be installed without metal conduit protection.

It is significant, however, that most fire tests share another commonality: the performance of the cable and its protective sheathing is exposed to a single source of intense heat.

This kind of "test bed/rig" is similar in principle and structure to the elongated Bunsen burner flame test traditionally used in determining fire performance of most cable installations.

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## Other problems created by plastic cable sheathing

Nearly all cable sheathing is made from some form of plastic which has high combustion potential and very often is responsible for the rapid distribution of fire throughout the structure.

Most cable sheathing produces smoke, toxic fumes and even acidic gases...and as is known all too well, smoke kills faster than heat, flames or structural collapse.

For reasons of convenience, many services such as electrical cables are installed along corridors from where they are sub-distributed into adjacent rooms. Many corridors also serve as access routes and fire escape routes.

If these cables catch fire, the smoke produced will likely impede escape by obscuring emergency lighting and exit signs and reduce oxygen levels while increasing toxic gasses such as carbon monoxide (CO).

Acidic gases produced also cause severe damage to construction materials and the interior of the building. Even quite small fires can produce enough acidic fall-out to destroy relatively sensitive electronic equipment in buildings.

Awareness of and concern for environmental considerations is always changing for the better. Until recently most cables for LAN installations, for example, were PVC sheathed. The need for halogen free cables was only applied in a few special cases...until now.

Significant change in political and social attitudes and the follow-on downstream regulatory climate is now developing in the market.

Indicative of these new and continually evolving trends are the CENELEC standards EN 50167, EN 50168 and EN 50169 articulating direct specification that screened cables must be free of tungsten halogen.

These new requirements to halogen free cables have impact on the safety and especially the fire rating of the cables.

It should be noted that halogen free materials are normally more expensive than PVC to buy and to process. As a result halogen free cables are typically more expensive than the corresponding PVC sheathed cables. Furthermore, some cables, especially with earlier compounds, may be more stiff and thus considerably more difficult to work and install than the corresponding PVC cables.

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PROMATECT® 50 riser pipe and services enclosure at the carpark of Eastern Mansion, Singapore.



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## Do cable fire tests replicate actual fire scenario conditions?

There are other fire test methodologies but most in some way expose test subject electrical cables in protective sheathing to a form of single source controlled flame. This is generally considered to be representative of the intense heat found in actual fire scenarios.

Given the increasing complexity of buildings, it is perhaps not surprising that many in the fire science industry now question if single (Bunsen) burner tests accurately replicate the intense and often onerous fire and heat conditions likely encountered in most fire scenarios — fully developed or not — in the modern built environment.

In most construction situations nowadays, it is the M&E consultant who is tasked with the responsibility to ensure that essential services, for example, remain operational during a fire.

Due to training and product knowledge, the M&E consultant will almost certainly recommend the use of fire resistant cables. Some manufacturer's market their cables on the suggestion that they will remain functional for 180 minutes in a fire.

What kind of fire and in what kind of building and location are other unanswered questions.

Other than keeping electrical cables functional, the ability to prevent spread of flame along cables, from one compartment to another also becomes questionable, particularly if proven fire stopping materials are not used to seal nearby penetrations.

## Encasement of cable installations only realistic option

The only proven method to minimise cables as the source of fire spread is to encase the cable or bundles of cables in enclosures of tested, tried and proven fire resistant material.

Various combinations of Promat's tried, tested and proven architectural building boards are ideal for the fire protection of electrical cable installations.

This is particularly the case in fireproofing long runs of cables and cable bundles.

Encasement of electrical cables has to be teamed with appropriate and complementary fire stopping systems when cables or bundles of cables penetrate fire compartments.

A system of enclosures or encasement of cables, in partnership with a wide range of proprietary fire seals, will get around most if not all of the problems that single burner cable test data might not predicate accurately for actual fire scenario conditions.

Cables encased in proven fire protection material, installed properly and with appropriate fire stopping material, are designed to remain functional in a typical and fully developed fire for their specified and proven amount of time...allowing building users and occupants to escape to safety.

Promat enclosure and encasement systems, working with tested and tried Promat fire stopping materials, deliver the promise of proven fire performance.

Cables clearly require reliable protection to ensure safety of occupants while reducing property damage.

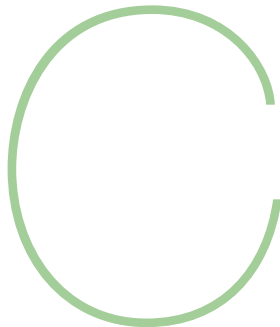
A well-designed fire safety system that includes truly effective fire resistance in the cable network goes a long way in assisting fire fighters in their various and frequently dangerous tasks.

For more information on the fire protection of electrical cables and the integrated range of modern fire science technologies, please consult Promat or visit [www.promat-ap.com](http://www.promat-ap.com) website. □



General M&E services enclosure (clockwise from top): PROMATECT®-H for the carpark of Tseung Kwan O residential building in Sai Kung District, New Territories, Hong Kong; VICULCAD® at the basement of Vivocity Singapore; PROMATECT®-H for outside of a warehouse at 9 Benoi Sector, Singapore.





ities have always been magnets for dreams and aspirations, and the promise of a better tomorrow. Today more people are living in urban centres than at any other time in human history. This trend is increasing and the pressures on the built environment, unheard of just a decade ago, are tremendous.

Along with improved education and increased awareness, many developers, architects, engineers, contractors and building occupants now expect the built environment to observe and be built on recognised principles of real sustainability.

The environmental awareness lobby is definitely gathering considerable momentum but these are still early days yet. Fortunately many self-governing bodies and regulatory agencies around the Asia Pacific region are leading the way. One such “self help” group is the Hong Kong Green Council and its Hong Kong Green Label Scheme (HKGLS).

The Hong Kong Green Council was registered as a non profit, independent and non partisan environmental organisation in 2000. Its aim is to improve knowledge of environmental issues to industries, retailers, suppliers, governments, academics and the general public, and to act as a catalyst for changes in attitudes, perspectives, decision making, action and implementation. Education and coordinated training programmes are a major strut in its public manifesto, spreading the message of Green.

Reflecting the increased demand for ecologically friendly products at all levels of commerce, HKGLS establishes clear and recognisable benchmarks for environmental standards acceptable to the public, to industry and to regulatory agencies.

HKGLS uses a wide ranging product information database to identify and select the appropriate product categories. Some criteria in relevant standards also require compliance with currently in use local legislation and the Hong Kong SAR Government’s energy efficiency label scheme.

The council and its HKGLS draw upon academia and industrial, commercial and environmental sectors to help administer and operate its policies and functions.

Recently, Promat board and intumescent coating products — PROMATECT®-H, PROMINA® 60, PROMINA®-HD and Cafco SPRAYFILM® WB3 — were awarded HKGLS certification.

Submitted documentation for the approval includes relevant fire test reports, certification and other bona fide declaration from independent third party organisations to clearly demonstrate that the products and/or systems are adequately tested to the regulatory requirements.

Test reports performed by accredited laboratories, e.g. HOKLAS, CNAS and ISO 17025 compliant labs, are in the case of the HKGLS and other similar schemes considered adequate. Similar reporting systems apply to essential factory audits.

Given the scale and nature of consumerism in a modern urban centre like Hong Kong, the implications of the scheme are widespread.

As such awareness expands, HKGLS certification will slowly but surely increase measurable impact on marketing and revenue generating opportunities in the future.

The system of HKGLS now covers building components such as materials made of fly ash, flooring materials, wall coverings, windows, modular carpeting, fibre reinforced home décor product, ceramic tiles, adhesive, building products using recycled materials, paints, building products using natural minerals and thermal building insulation. The list is still expanding!

As sustainability becomes increasingly important to bottom line activities, more Promat systems are likely to be certified according to parameters and other regulatory HKGLS framework, making the built environment more sustainable and a better place in which to live and work. □





## Projects

Coal chemical plants in Yuantianhua, Shilin, Tongmei and Tinye

Applications  
Structural steel cladding and partitions

## Products

PROMATECT®-N and PROMINA® 60 matrix engineered mineral boards

Coal chemical plant in Tianye, Inner Mongolia.

This capital intensive high investment development will remain a conspicuous feature of the country's overall energy strategy for the next two decades, greatly reducing environmental pollution and reliance on imported oil.

The coal chemical industry is based on an industrial process that converts coal into gas, liquid or solid products. Its end products are clean energy and other cost effective alternatives to conventional petrochemical by-products. The latter are in high demand by the country's booming manufacturing sector.

In China, most of the big coal chemical projects are located in major coal producing provinces such as Shanxi, Inner Mongolia and Yunnan, distant from coastal port manufacturing centres.

A common feature of most coal chemical projects is the coal gasification facility which can easily attain heights of 115m or more. Such plants are usually divided into several functional areas such as gasification frame, coal grinding frame, heat wind furnace frame and pipeline lane area.

The gasification frame and coal grinding frame typically form the main structure of the building. For example, in a usual gasification plant the structure of first to fifth floors is a concrete frame, but sixth floor and above usually feature a steelwork frame.

Given the fire risk nature of such plants, and their high rise multifloor structure, the need for well designed fire science compartmentation principles and tried, tested and proven fire

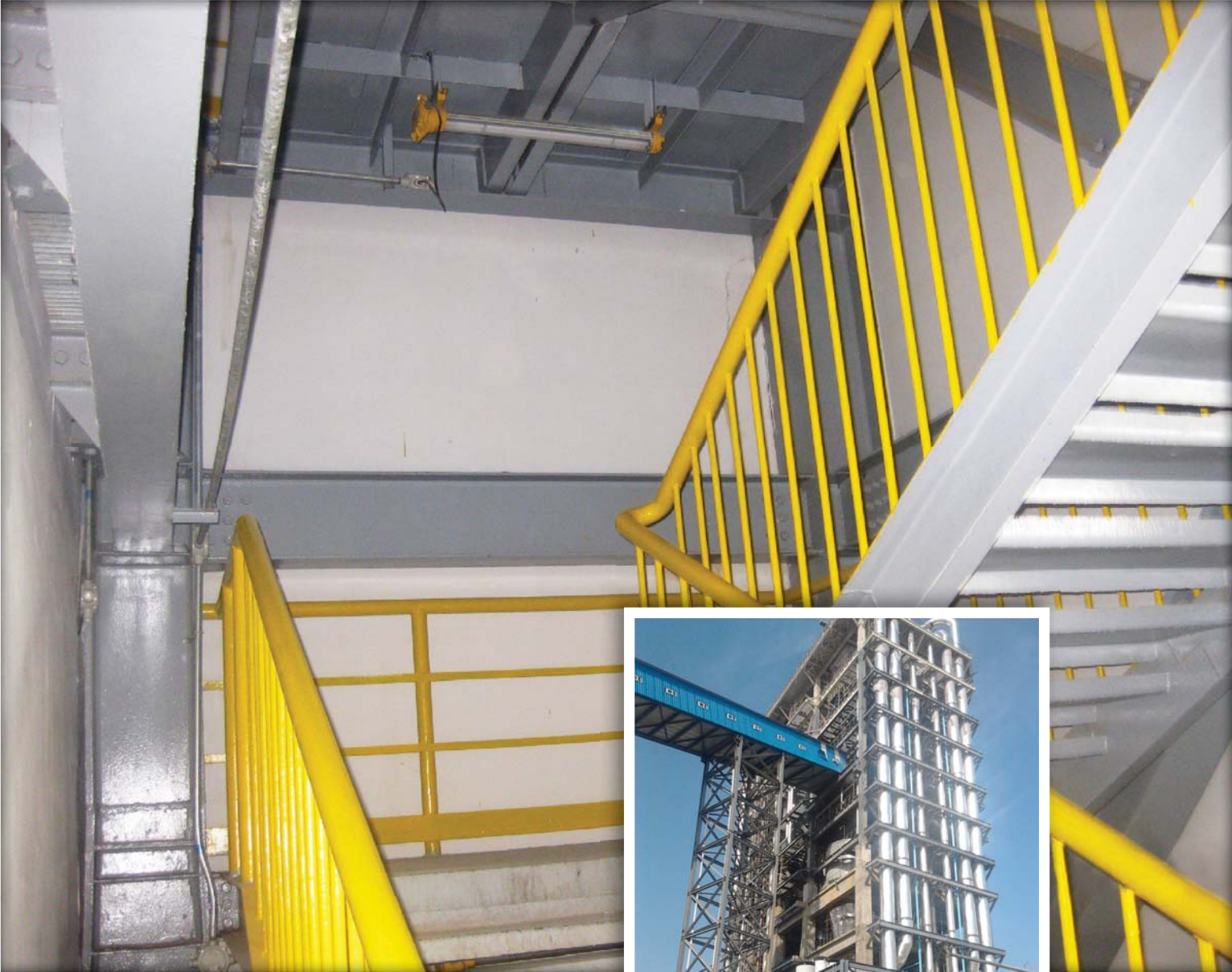
science technologies is obvious.

Safe and reliable evacuation routes also have to be taken into account. Indeed, two or more escape staircases are often installed in such coal gasification projects. It is usual that escape staircase are considered as separate but essential fire compartmentation. In many instances the perimeter wall must provide 120 minute or more fire resistance.

## Boom in China's coal chemical industry fuels opportunities for Promat

China possesses the second-largest coal reserves in the world today and indeed it is the world's largest consumer and producer of coal. Its demand for coal is driven largely by ever increasing needs for electrical energy.

The growth in the country's electrical power sector, combined with persistently high crude oil prices and recent technological breakthroughs now focus China's attention on better utilisation of its considerable reserves of fossilised carbon for chemical production.



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It is usual that escape staircase are considered as separate but essential fire compartmentation. In many instances the perimeter wall must provide 120 minute fire resistance.

Other than the wall elements, the steel columns and beams in escape staircases also require fire protection.

According to China's building code, the highest fire resistance level for beams is 120 minutes and 180 minutes for columns.

Factoring durability, proven technical performance to international standards, ease of installation and acceptable final appearing into the decision making process, a fire protection system of board cladding to steelwork is a sensible best choice.

Thanks to performance that consistently delivers the fire resistant promise, reliable product quality control systems and strong technical support from well qualified professionals, Promat passive fire protection systems have been widely adopted by China's big coal chemical projects.



Above:  
PROMINA® 60 partitions at the staircase of the Tianye plant (above) and Shilin plant (left). Both projects located at Inner Mongolia.

These include:

- Yuntianhua project in Yunnan province,
- Tongmei project in Shanxi province, and
- Shilin and Tianye projects, Inner Mongolia.

The projects feature 180 minute PROMINA® 60 lightweight steel stud partitions, 180 minute PROMATECT®-N steel column cladding and 120 minute PROMATECT®-N steel beam cladding. These reliable passive fire protection applications, amongst other systems, have been installed to high levels of customer and regulatory satisfaction. □

# Dramatic Gehry icon on Hong Kong skyline protected with Cafco SPRAYFILM® WB3



<b>Developer</b> Swire Properties Ltd	<b>Application</b> Structural steel column fire protection
<b>Architect</b> Frank Gehry	<b>Products</b> Cafco SPRAYFILM® WB3 water based intumescent coating
<b>Main contractor</b> Gammon Construction Ltd	

The site itself, in the mid Levels of eastern Hong Kong island, has a long history. First acquired by the Swire Group in the 1920s, the company built a residence there for one its directors in the 1940s. Now as then, the site commands sweeping panoramic views of the world famous harbour.

In one of the world's most densely populated territories, 53 Stubbs Road and its immediate surrounding area also commands equally real estate stupendous prices.

As Guy Bradely, Director and General Manager of Swire Properties Ltd said at the time, "Together we look forward to (creating) a truly exciting architectural design, befitting this unique site and Hong Kong as a world class city"

When an internationally renowned architect Frank Gehry comes to town, the world of design, town planning and even fire protection invariably sits up and takes notice... and Hong Kong is no exception!

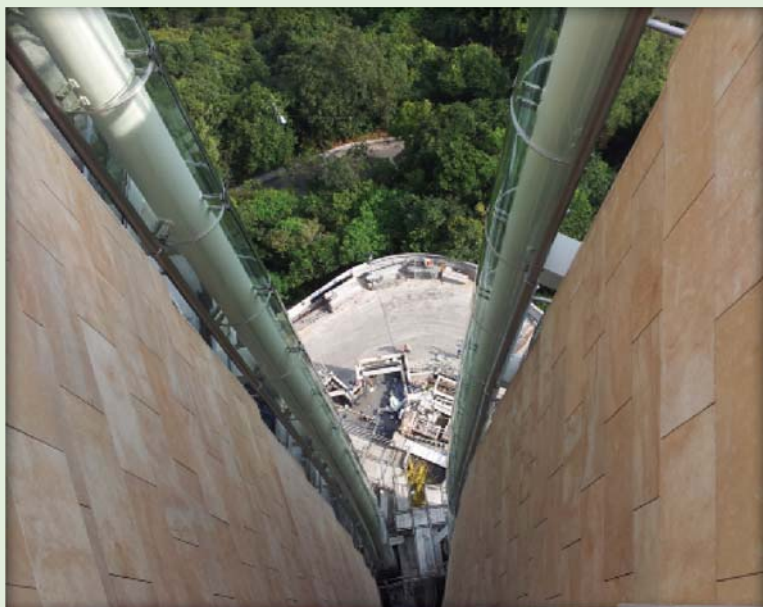
Gehry is the winner of the 1989 edition of the prestigious Prizker Prize, generally regarded as the Nobel Prize of architecture. His landmarks around the world include the Guggenheim Museum in Bilabo, Spain and the Walt Disney Concert Hall in California.

It has been said that Gehry's structures are "powerful essays in primal geometric form and materials, and from an aesthetic standpoint they are among the most profound and brilliant works of architecture of our time."

The 53 Stubbs Road project in Hong Kong is the architect's first residential structure in Asia.



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# Unique “bamboo” structure creates good ventilation

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The 53 Stubbs Road project is a single twelve storey residential building that does much to address HK’s notorious summer temperatures and notoriously high humidity.

No structural walls inside the apartments, allowing a flexible layout, also means excellent ventilation.

The structure’s tower is supported by external columns that resemble bamboo, reflecting eastern design traditions while integrating modern structural trends.

Indeed, the “bamboo” structure is actually a circular steel column that ensures structural integrity. Caico SPRAYFILM® WB3 intumescent coating is used to achieve the required 120 minutes of fire resistance to BS 476: Part 21.

The excellent smoothness possible with Caico SPRAYFILM® WB3 water based intumescent coating is a precise fit for this prestigious, luxury benchmark residential project.

Promat is proud to work with main contractor Gammon Construction Co Ltd to achieve the desired aesthetic and safety results. □

# Promat Microtherm keeps things cool in Taiwan polysilicon plant



<b>Project owner</b> Shihlien Energy Technology Co Ltd	<b>Distributor/Applicator</b> Integral Technology Inc
<b>Consultants</b> Promat International (Asia Pacific) Ltd, Nippon Microtherm Co Ltd, Japan	<b>Application &amp; Product</b> Cold storage tank insulation with MICROTHERM® Slatted Panels



**P**olysilicon is an extremely pure form of silicon, Planet Earth's second most abundant element. Thanks largely to its semiconductor-like material properties, polysilicon is in much demand as a feedstock material for many solar energy wafer manufacturing applications.

Polysilicon is melted at extremely high temperatures into a liquid state. Silicon crystal ingots are then grown from the resulting melt.

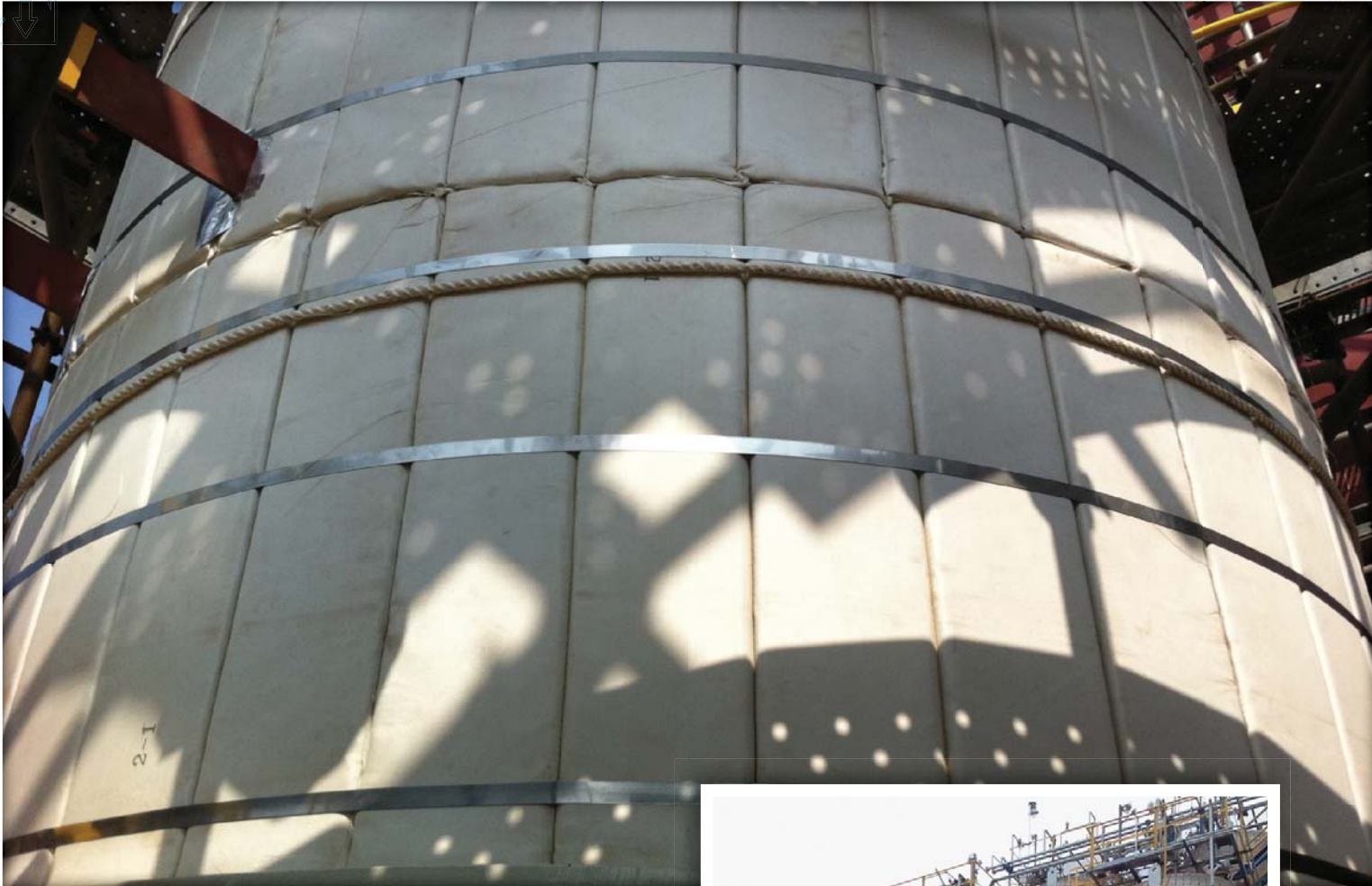
As part of the process, compounds like dichlorosilane, trichlorosilane and tetrachlorosilane have to be stored in cold storage tanks. These require extremely effective and

space efficient insulation to keep their contents down at acceptably low levels.

The final ingots are squared and sliced very thinly into wafers. The wafers are installed in solar cells to convert sunlight into electricity, a growth industry in a world hungry for sustainable, environmentally friendly energy.

In February 2011, the Promat-Nippon Microtherm team received information from US associates that a large polysilicon plant would be built in Taiwan. The company then began discussions with the Taiwanese corporation, Shihlien Energy Technology Co.

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## Cool treatment for six big storage tanks with satisfactory insulation performance

Shihlien provided Promat-Nippon Microtherm team with technical drawings for six super cool storage tanks. Using their considerable resources, the team designed nanotechnology insulation systems to meet Shihlien's requirements. Temperatures at the polysilicon storage tanks had to be sustained at below 200°C ambient. This is the opposite case to extremely high temperature requirements in typical industrial insulation applications.

25mm thick MICROTHERM® Slatted Panels was recommended for this particular application.

For Taiwan based distributor, Integral Technology Inc, the Shihlien storage tanks was their first big project to install such insulation. To supervise the installation, Promat-Nippon Microtherm team jointly visited the site in Guanyin of Taoyuan County.

The dimensions of the storage tanks and their operating temperatures are as follows:

- First tank, H16.8m x D3.7m at 26°C
- Second tank, H8.4m x D2.1m at 65°C
- Third tank, H10.6m x D3.2m at 165°C
- Forth tank, H10.6m x D3.2m at 26°C
- Fifth tank, H10.6m x D3.2m at 93°C
- Sixth tank, H16.8m x D3.7m at 65°C



High performance insulation of MICROTHERM® Slatted Panels for the surface of cold storage tanks

On-site cutting of the insulation material was required. In fact, the installation time was also used to train local personnel on the intricacies and characteristics of handling MICROTHERM® Slatted Panels, how to cut and to install.

This was done on a daily hands-on basis. The panels also had to be covered to prevent water damage by rain.

Thanks to enthusiastic and confident support from local personnel, and many good days of fine weather, the installation was achieved with good results.

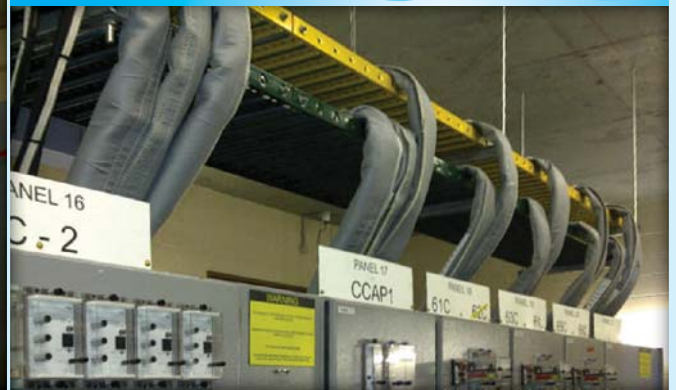
Shihlien is currently investing heavily in marketing their output to growing the photovoltaic market. They will soon look into the potential of expanding their market share.

In this event, Promat-Nippon Microtherm team can look forward to the possibility of valuable collaboration again in the future. □

# PROMABLANKET®

## quietly at work protecting vital cable installations in Brisbane's major tunnel

Project  
Brisbane Airport Link Tunnel  
Main contractor  
Thiess John Holland  
Application & Product  
Cable fire protection with PROMABLANKET®



Tunnels present demanding challenges and are generally tough to build...but they have a wonderful habit of delivering happy solutions.

They rapidly resolve space and congestion problems, especially in big cities, cutting delays for travel time, for virtually all users, on wheels or on foot.

Tunnels bring people and remote locations together, quickly. Usually in both short and long term time lines, tunnels save time and money.

But tunnels and other underground spaces are not always easy to engineer or build. They require specialist skills, equipment and facilities.

They can also create concerns, especially for risk management factors that, by and large, risk managers manage very well indeed.

But once they're up and running, any disruption to the normally smooth routine daily operations of tunnels can cause unexpected social problems and expensive economic dislocation.

From a fire engineering point of view, tunnels represent a wide range of different technical and other risk factors.

Fortunately, far sighted and innovative companies like Promat have met and overcome the various challenges.

Indeed, Promat has, over the years, created a well earned reputation for engineering effective fire solutions around the world, in Europe and elsewhere.

The nub of engineering tunnels big and small is of course space. There's never enough of it.

Call it "space engineering" at its best, underground or below surface engineering, where limited space has to deliver multipurpose functionality in complete safety.

Space in tunnels is space at a premium; expensive and with many onerous work duties demanded of it.

Promat is an acknowledged expert at delivering effective fire engineering solutions for tunnels and underground spaces everywhere.

The Airport Link Tunnel in Brisbane, capital of Australia's subtropical sunshine northern state of Queensland, is a perfect example of Promat expertise, products and systems in action.

Here, as elsewhere, Promat worked closely with customers and master contractors, from planning right through to fit-out and trials.

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# New cable wrapping solution in effective fire protection

The Airport Link Tunnel project created employment and career opportunities from the get go, for some 30,000 people, with thousands working on site every day.

The economic spin-off benefits were immediate and continue today, significantly easing Brisbane's metropolitan traffic congestion.

These trends are likely to continue and accrue for many years to come.

To ensure that the link tunnel works safely and securely to specification, Promat Australia installed the company's new PROMABLANKET® cable wrap system.

Developed exclusively by Promat Australia, the specially designed PROMABLANKET® system was selected for application in the Brisbane Airport Link Tunnel system, thanks to its excellent technical performance when used to protect cables from spread of flame, and its superior ease of use and installation.

Like all Promat products and systems, PROMABLANKET® delivers the promise of effective international standard fire protection...and it is easy to apply, install, maintain and, if necessary, also easy to replace.

In the Brisbane Tunnel, PROMABLANKET® protects strategically important electrical cables and management vital fibre optic cable systems.

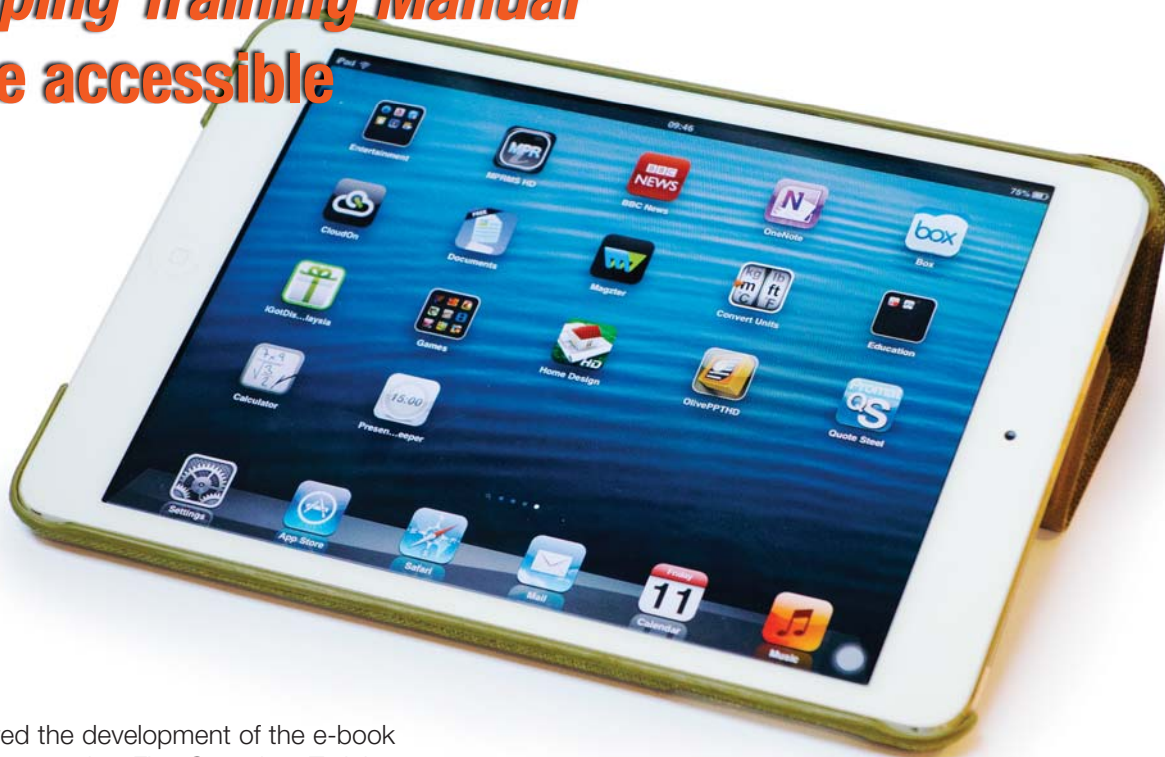
The Brisbane Airport Link Tunnel was Australia's largest civil engineering project in many decades. PROMABLANKET® provides the kind of fire performance characteristics that meshes well with this iconic and conspicuous high end infrastructure project.

The project is a win-win situation for all. The tunnel owners/operators are assured peace of mind with an expensive tunnel operating efficiently and tunnel users being able to go happily about their business in safety. □





# Continuing innovation: Quote Steel App and Apple's iBook format of Fire Stopping Training Manual now more accessible

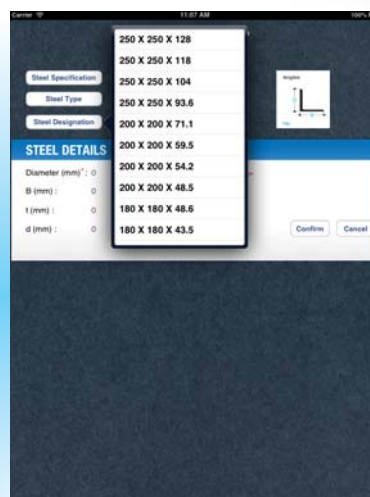


Format followed the development of the e-book format of its popular *Fire Stopping Training Manual* and its subsequent release at Apple's iBookstore with the launch of the smart new *Quote Steel App* in the App Store.

The e-book includes animation videos, project reference photos and many of Promat's professional 3D Studio Max technical application drawings. Apple's iBook format has won considerable praise for its comprehensive interactive widget experience, and the latest Promat e-book makes full use of this technology.

The *Quote Steel App* simplifies the entire process of complex technical calculations for bills of quantity of tried, tested and proven Promat fire protection systems required for structural steelwork. The products covered by the App include board, spray and fire resistant paints.

The *Quote Steel App* is available free for iPad users from the App Store.



the secure section of Promat Asia Pacific website accessible only for users by exclusive invitation.

PIC is now equipped with additional calculation tools and an interesting selection of many enhanced multimedia features. The latter engages users by focusing on the installation procedures of various

Promat passive fire protection systems.

A System Selector for Promat products and applications is now under development for PIC.

Simply ask this tool to find an overview of a certain system in the current digital version of the Promat Asia Pacific Technical Handbook — 240 minute PROMATECT®-S for a suspended ceiling membrane, for example — and the System Selector will take users directly to the required technical information. □

## Web version Quote Steel at PIC

An expanded web version of the *Quote Steel App* is now also available at Promat Information Centre (PIC),

Please contact your local or nearest Promat office below or write to us at [ptt@promat-ap.com](mailto:ptt@promat-ap.com). For more information of the Promat Asia Pacific group, please refer to [www.promat-ap.com](http://www.promat-ap.com).

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