

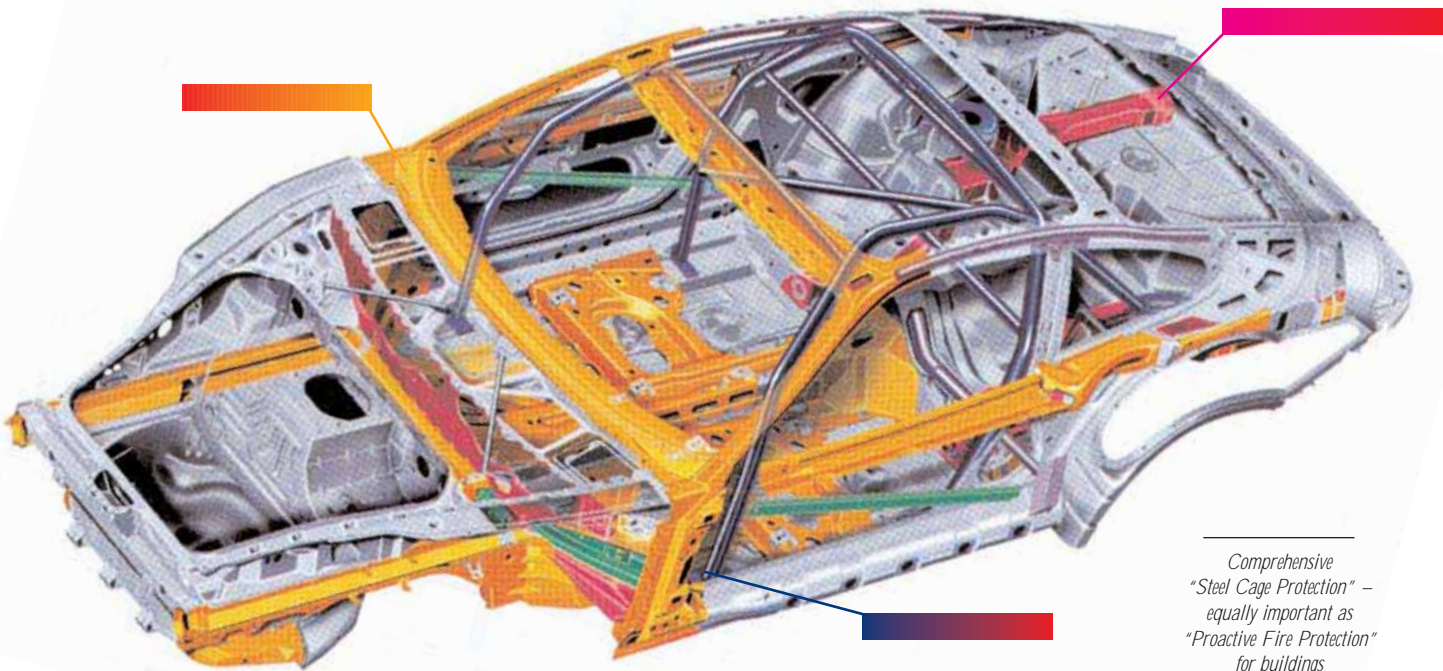
PROACTIVE FIRE TRENDS

The Journal of Proactive Fire Technologies
for Asia Pacific Building Industry Professionals

MITA/219/11/97
KDN PP 10803/5/2000

Volume 4, Number 7
First Half, 2001

Gentlemen... Start Your Engines, It's Time To Change Perceptions!



Comprehensive
"Steel Cage Protection" –
equally important as
"Proactive Fire Protection"
for buildings

Proactive By Design

These days, cars are built to a number of criteria – form, function and safety significant among them. In fact, it is no stretch of the imagination to compare cars directly with modern buildings.

In many cars, for example, the vehicle is designed around a strong safety frame. Bodywork is attached to the frame which also protects the driver. Other sophisticated safety features – such as airbags and harnesses – would not function if the integrity of the safety frame is first compromised.

In this way, the steel frame or cage in which the driver sits comfortably could be said to be a proactive element of the car's design. Protective. Prepared. Ready to cope with any unforeseen emergency.

Much the same can be said of modern buildings and modern building principles. Built on solid foundations with a matrix of strong structural elements, most buildings have numerous protection features designed-in. In the event of fire, the active systems (such as sprinklers etc) will not perform if their partners in protection – passive fire protection systems – are absent or rendered irrelevant.

In this way, passive fire protection is clearly a Proactive System. Multifunctional. Silent. Prepared. Ready to provide long-lasting protection because this hardworking component is first and foremost designed to be Proactive.

Defining Proactive

Widely used and often misused, **Proactive** can be defined accurately as:

Pro – A prefix meaning favouring or supporting.

Active – adj. 1) To make active. 2) In actual existence. 3) Involving or causing action. 4) Nimble. 5) Currently in action. 6) Not inert.

Proactive implies taking control in a positive manner. Being proactive also means being active towards and anticipating a likely course of events. In the context of a building structure, proactive means benefiting from the positive presence and action of an existing, purpose-designed application.

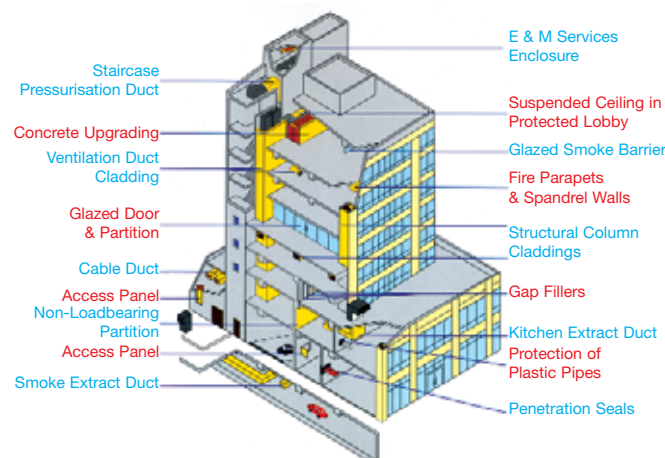
Indeed, this proactive spirit empowers passive fire protection systems with a key proactive role in any integrated fire protection system. It is the same proactive principle which makes Promat a total fire protection solution provider.

Proactive System Design

Modern cars are designed to produce optimum performance. It is more or less the same with modern building structures.

Indeed, buildings can and should be built according to proactive principles which ensure the intended results in purpose, efficiency and high levels of safety. To maximise form and function. To protect the built environment and its inhabitants.

A Proactive Fire Protection Concept for buildings



The quiet, so-called passive components, frequently overlooked and taken-for-granted, should be perceived as proactive and part of a whole proactive system. They work like the protective frame, or cage, of a car.

These proactive concepts can be incorporated at the very beginning, starting with the developer's perception and then passed to the designer to specify sensible performance according to building and fire codes and standards.

(continued on Page 3)

FEATURES

NETWORK REPORTS



2

Malaysia's Telecom Tower
Fire Rates Ducts With
PROMATECT®-H



3

PROMASTOP® UniCollar®
First In On-Site Projects
In Hong Kong

TECHNOLOGY UPDATES



4

More Proactive
Fire Protection Solutions

SCIENCE & RESEARCH



6

Laymen's Guide To
Fire Resistant Ductwork

WORLD NEWS



8

Tragedy Strikes In
Luoyang Disco

PROACTIVE VISION?

As I travel around the Asia Pacific region, I am constantly reminded of the contrasts and commonalities that effect all our lives. In business and in personal terms. The differences are enormous. This is to be expected. On the other hand, the similarities are as numerous as they are profound. Taking this idea a step further, I see many shortcomings constantly outweighed by the strengths and benefits of diversity in human and commercial endeavour. There always seems to be more than enough optimism to encourage a reasonable measure of hope in the future.

It also strikes me that the key common denominators for success are vision and effort (more effort and yet more effort) plus the ability to be proactive. With this we can energise the present with positive action and perhaps even anticipate a little of the future. The exceptional results achieved last year tend to suggest that we are on the right path.

In this issue of PFT, I invite readers to take a quick look at the imperative to reposition passive protection as proactive protection, amplifying its relevance to our business of fire sciences and fire protection technologies in general.

Also in this issue, there's a review of a wide range of international quality Promat products and systems. On page 3 a brief overview on the use of **PROMASTOP® Unicollar®** in Hong Kong and a popular, convenient and cost-saving method for their installation. A country-by-country comparison of fire rated ducts – vital information for this essential area of business – is the core of our Codes and Standards contribution on page 6. Elsewhere, a review of India's One-Stop Technical Manual on Requirements of the National Building Code of India (superbly assisted by Promat India, I am pleased to report) and a report on tragic fires in China complete this issue of PFT.

In this age of rapidly evolving Information Technology, I would like to encourage all readers to use their e-mail facilities. Alternatively, don't hesitate to fax the completed Business Reply Coupon included in this issue of PFT. Remember, you are not alone. The information and service you require to make Passive Fire Protection a truly proactive system and a continuing success is readily available.

I am sure we have all heard that knowledge, creativity and innovation are the key requirements for the New Economy. I believe it is vital for us – as individuals and as a multinational business – to be visionary and to be proactive. I thank you all for your outstanding contributions over past months and I look forward to attaining with you and all our business partners new heights in the future. Don't forget, if we have proactive vision "There Ain't No Mountain High Enough" for us to scale and conquer together in our quest to reduce fire risks and to make the world a better place to live in!



Erik D. van Diffelen
Managing Director

May 5, 2001

Promat International (Asia Pacific) Ltd.
Malaysia

diffelen@promat-ap.com

PROACTIVE FIRE TRENDS

Volume 4, Number 7

First Half, 2001

The Promat International Asia Pacific Network spans the region with innovative proactive fire protection products, systems and solutions: Australia, China, Hong Kong, India, Indonesia, Malaysia, Philippines and Singapore, with distributors in Brunei, Japan, New Zealand, Taiwan and Thailand.

Proactive Fire Trends (PFT) is published by Promat International (Asia Pacific) Ltd. for professional organisations and/or individuals interested in the fire sciences industry in the Asia Pacific region.

No part of Proactive Fire Trends may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording or otherwise, without the prior written permission of PIAP. While every professional care has been taken to ensure that the contents of this publication are accurate

and up-to-date, PIAP, its subsidiary companies and associates, do not accept responsibility for errors or for information which is found to be misleading and/or inaccurate. The information in Proactive Fire Trends is furnished for informational use only, is subject to change without notice and should not be construed as a commitment by PIAP, its subsidiaries or affiliates. The design and technical recommendations in this publication are based upon the best knowledge available at the time of publication. However, no responsibility for any kind of injury, death, loss, damage or delay, however caused, resulting from the use of recommendations or information contained herein can be accepted by PIAP, its subsidiaries or affiliates associated with its preparation and presentation. With suggestions for or descriptions of the end use or application of products and/or services mentioned in Proactive Fire Trends or supplied or manufactured by PIAP, its subsidiaries or associates, customers should first fully satisfy themselves of their suitability. If further information or assistance is required, PIAP may, within the operational limits of its professional and legal limitations, often be able to help.

MITA 219/11/97 (c) Promat International (Asia Pacific) Ltd. and Promat Building System Pte. Ltd., 371 Beach Road, #14-03 KeyPoint, Singapore 199597 Tel: (65) 294 9689 Fax: (65) 294 9783

NETWORK REPORTS

● New Tower Employs Quality Proactive Fire Protection

Malaysia's Telecom Tower Fire Rates Ducts With PROMATECT®-H

Expected to be complete in late 2001, the modern architectural design of Telecom Tower Malaysia is set to dominate the visual landscape of the Mid Klang Valley.

Designed to headquarter Malaysia Telecom, the new 60-level high rise is sited on Jalan Pantai, next to the Federal Highway with easy access to many bustling metropolitan areas, such as the Bangsar district and Kuala Lumpur city.

When construction began in 1996, a high level of built-in proactive fire protection was an integral component of the imposing structure's basic building concept, sectionised into North and South wings.

From its ground floor up, 12mm PROMATECT®-H has been used extensively in the tower's self supporting fire-rated ducts. These include important smoke extraction ducts within both North and South wing areas, the carpark and the multi-purpose hall. To ensure the safety exit functionality of fire staircases, pressurisation air ducts were also given 12mm PROMATECT®-H protection throughout the building.

As a routine part of the Promat system approach to proactive fire protection, critical inspections were carried out by Promat's Malaysia representative from time to time to ensure that duct construction complied with Promat system and certification approvals. **PFT**



Right: Smoke extraction ducts play an essential role of safety protection in this modern architecture design building



INDUSTRY REVIEW

Are Passive Fire Systems For Real?

Mr Siew Yee Cheong, a leading engineering consultant and industry champion for fire safety in Singapore asks in his opening speech, "Are Passive Fire Systems for real?" Mr Siew was the guest speaker for the seminar on 6 April 2001 held at PSB Building. The seminar entitled "Quality Installation Techniques for Fire Rated Systems", was conducted by Promat Singapore. Seventy representatives from 36 installation companies including Register Inspectors from 10 engineering and architectural consulting firms and guests from the Singapore Productivity & Standards Board and the Building Construction Authority attended the full day course.

The Commissioner of Singapore Civil Defense Force, the body which directs the future of fire safety in Singapore, Mr. James Tan recently announced on 14 March 2001 that existing prescriptive fire regulations will be more relaxed to prepare the building industry towards performance based fire safety designs. So how will Passive Fire Protection systems find their purpose, in performance-based building designs? Are the systems for real? The guest speaker's answer is: Yes, Passive Protection Systems are Real provided users:

- understand the specifications of the system;
- know the performance and the limitation;
- has high standards of installation;
- a good surveillance and quality standard maintain.

These are the precise objectives of the seminar, "to train and inform installors of Passive Fire Systems of the critical techniques vital to the proper fire performance of fire-rated systems."

The seminar also included topics:

- Fire Code Appreciation – to give installors a good overall view of the requirements in the current prescriptive code.
- Treatment Penetration seals – an often over-looked situation in buildings.
- The Unicollar – a Universal Fire collar for combustible pipes was launched as a versatile solution.
- Critical Installation Techniques – to inform installors that every screw and smear of compound matters to the actual performance of a fire rated system.
- Quality Installation Surveillance Procedures. **PFT**

● Hong Kong Housing Authority Adopted UniCollar®



PROMASTOP® UniCollar® First In On-Site Projects In Hong Kong

In February 2001, the Hong Kong Housing Authority approved and adopted the innovative PROMASTOP® UniCollar® for use in various projects. These include Tin Shui Wai Area 101, 106 and 110. Main contractors involved in the projects are Hsin Chong Construction Ltd, Shui On Construction Ltd and Ngo Kee Construction Co Ltd respectively.

Versatile PROMASTOP® UniCollar® provides a remarkably functional solution by sealing the gaps, a potential fire spread threat, created by uPVC pipes passing through slab. PROMASTOP® UniCollar® ensures that the slab's integrity is maintained.

The uniquely flexible and space-saving design also helps to ensure that PROMASTOP® UniCollar® meets user's budget parameters. It is apparently less time-consuming and easier to install than generic fire collars, according to Brisky Ltd, the installer. **PFT**

Far Left: The collars sealed up the gaps created by the uPVC pipes which induce possible fire hazard passing through the slab.

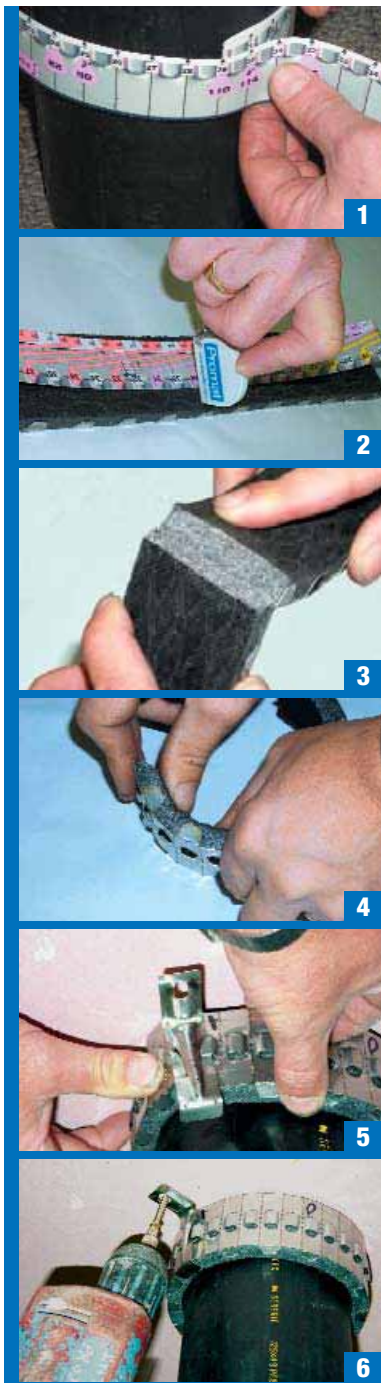
Pictures courtesy of



PRODUCT NEWS



Much Acclaimed, Convenient Installation Method



New improved PROMASTOP® UniCollar® comes in a continuous 2190mm long strip. This is 50mm wide and 12mm thick. There are normally 146 segments in one strip. Each segment is equally 15mm long.

After much research and development, not to mention on-site hands-on experience, a time-efficient installation for PROMASTOP® UniCollar® has been devised:

1. Use measuring tape from accessories box and measure circumference of pipe;
2. Lay the tape on a length of the collar and cut the Grafutex to the correct measure;
3. Bend the collar to 180°, until it snaps;
4. Shape the collar the approximate the circular shape of the pipe and then use cutter to bevel the Grafutex for a close fit;
5. Wrap collar around pipe. Clip on first bracket and slot both ends of the collar strip into bracket;
6. Install all other brackets and affix each of them in the prescribed manner.

The table below summarises average outside diameters pipe measurements as they vary from one pipe to another:

OD size	Length of Strip (guide only)	
43mm	225mm	15 segments
55mm	255mm	17 segments
69mm	315mm	21 segments
83mm	360mm	24 segments
110mm	435mm	29 segments
125mm	495mm	33 segments
160mm	600mm	40 segments

PFT

PROACTIVE BY DESIGN (continued from page 1)

In this way, the building's matrix of proactive protection systems – passive fire protection in partnership with other systems – can thus be orchestrated in a synchronised, harmonious proactive whole to maximise overall efficacy.

If a fire-rated architectural board or fire-rated cladding for a beam or smoke extraction ducting does not behave in a proactive way, it is likely that the components of an active fire protection system will be of limited value.

Being Positive & Proactive About Passive

Let's face it, "passive" is a very dull word, it's implications are also largely negative.

Look closely at "Passive Fire Protection" in a "proactive" context, the components of Passive Fire Protection can become very "active" partners for fire engineers and fire science experts.

The entire concept of fire protection is therefore enhanced.

In the event of an emergency, passive fire protection quickly becomes an "active" fire resistant system, working to fire-rated specifications to protect the environment and its occupants. Passive fire protection is therefore said to work proactively, as it is designed to be.

In times of need, all components in a proactive system work together to preserve the integrity of the overall structure. One would not work without the other. After all, the strength of a chain is directly related to its weakest link.

Converting Passive Into Proactive

It is time to change perceptions. It is time to think of Passive as Proactive and to convert the commonly held belief of Passive Fire Protection into a vital and necessary link in all Proactive Fire Protection Systems.

This is not a huge leap of faith.

The comparison of the proactive (passive) systems built into modern car designs is clearly similar to the proactive (passive) systems which can be included in a modern building.

We simply have to reposition conventional passive systems, working with other systems, as an integrated Proactive System. The time has come to persuade the construction industries market that passive fire protection is in fact a strong link in the chain of proactive protection. As such, proactive (passive) systems should be actively reconsidered as positively proactive and not just quietly passive. **PFT**

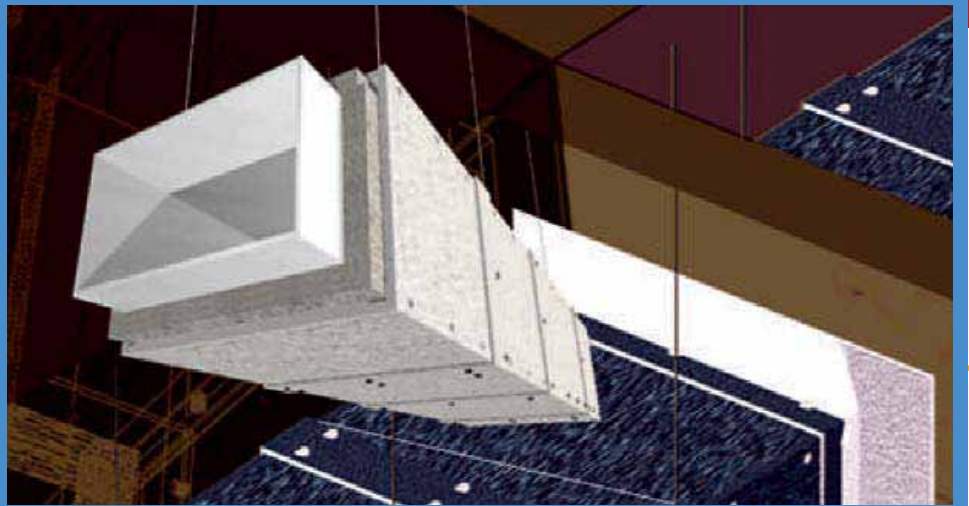
• Latest Information On Promat's Product & System Developments

More Proactive Fire

Fire-Rate HVAC Steel Ducts With PROMATECT®-L500 Cladding

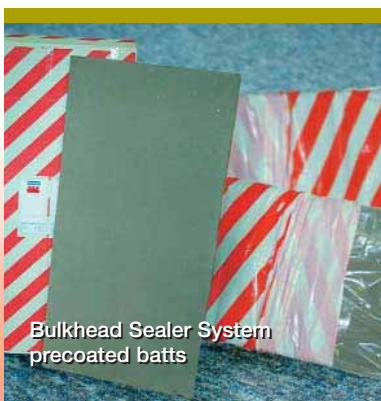
Air movement and purpose-designed extraction ducts often pass through fire compartments and protected areas. Promat has developed a system which encapsulates steel ducts with PROMATECT®-L500 board.

Non-combustible, lighter than other normal calcium silicate boards with compressive strength up to 2.5 N/mm², this system provides versatile duct cladding even at wall penetration sites and protection of fan connectors. **PFT**



New Additions to Range of PROMASEAL® Fire Penetration Seals

The range of PROMASEAL® fire penetration seals continue to find ready market acceptance, largely due to its fire resistant performance in wall and floor compartments. Following considerable on-going research and upgraded fire tests in accordance with numerous codes and standards, PROMASEAL® has created one new system and developed 2 new products:



Bulkhead Sealer System pre-coated batts

PROMASEAL® Bulkhead Sealer System

A compound made for sealing openings required for the passage of services through walls and floor slabs. Fire spread in other compartments is prevented. The compound consists of mineral fibre panels coated with PROMASEAL® Acrylic Sealant, a flexible and easily applied water-based sealant for the fire resistant sealing of joints and service penetrations.

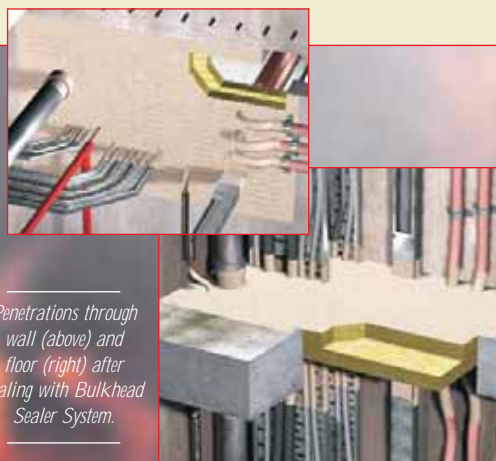
PROMASEAL® Bulkhead Sealer System is supplied in pre-coated batts measuring 1.2m long x 0.6m wide and 5 or 25kg containers of sealer.



Switchbox Intumescent



Expansion Joint Strips



Penetrations through wall (above) and floor (right) after sealing with Bulkhead Sealer System.

VICUCLAD® Gives Fire Protection To E & M Services Enclosures

Fire exit routes and lobbies must be constructed as fire safe cells. Modern buildings are so complex, however, it is often necessary to install services through these zones.

VICUCLAD® is a non combustible whose unique cellular structure of vermiculite is maintained by a pretreatment process. This gives excellent thermal insulation properties with dimensional stability at high temperatures.

VICUCLAD® has been extensively used and proven to be safe for the fire protection of Electrical & Mechanical services enclosures. **PFT**



Highly compressible and flexible PROMASEAL® Expansion Joint Strips

are employed where movement joints are part of building structure. When exposed to fire, the 5mm thick intumescent cover on the strip's surface expands to fill the expansion joint gap. An effective smoke barrier is ensured. The strips are available in 1 metre lengths for easy manual installation.

PROMASEAL® Switchbox Intumescent


Compartment walls can form a fire barrier between the compartments they separate. Often, however, recessed switch boxes need to be installed in fire rated dry wall structures. PROMASEAL® Switchbox Intumescent provides fire rated performance to maintain the fire resistance of compartment walls where power outlets and switch boxes are installed. **PFT**

Protection Solutions

Complete Range of Promat Fire Collars for Various Plastic Pipes

Fire Collars are designed to prevent the spread of fire where plastic pipes and cables penetrate fire-rated elements, maintaining the Fire Resistance Level (FRL) of that element. They normally consist of intumescent compounds which, exposed to fire conditions, expand under pressure to seal penetrations.

Promat has developed a complete range of fire collars for various plastic pipes. Their unique, patented opening mechanism allows installation before or after pipe work is installed. Promat fire collars contain no asbestos, fibres or solvents. They are unaffected by water and atmospheric conditions.

- **FCS - PROMASEAL® Retrofit Collar**
Round flange plate, designed for retrofitting around pipes which pass through floor slabs and insulated drink lines through floors and walls.
- **FC - PROMASEAL® Retrofit Collar**
Square flange plate with rounded corners, designed for retrofitting and relocation use as FCS including plastic pipes through walls.
- **FCC - PROMASEAL® Cast-In Collar**
Steel type, designed to be fixed to formwork before pouring concrete floor slabs.
- **FCCP - PROMASEAL® Cast-In PolyCollar**
Performs same function as FCC but lighter and easier to install. Addition of exclusive "SlabGuard" extension unit provides clear access for pipe installation. *Also featured in PFT No.6*
- **FCW - PROMASEAL® Wall Collar**
Designed for installation in fire-rated boards, concrete or masonry walls.
- **FCD - PROMASEAL® Drop-In Collar**
Designed for installation in cored holes from either top or underside slab.
- **CFC - PROMASEAL® Conduit Collar**
One-sized flat strip, designed to fit 32mm pipes, can be cut down for smaller pipes if necessary.
- **UC - PROMASTOP® UniCollar®**
Versatile "one size fits all" concept. Supplied in continuous steel strip form which can then be cut to length and attached to the element using ready-made purpose-built clips. Available in single order packages which also feature a measuring tape to assist identification of the cut-off length of the strip. *Also featured in PFT No.6* 


CFC PROMASEAL®

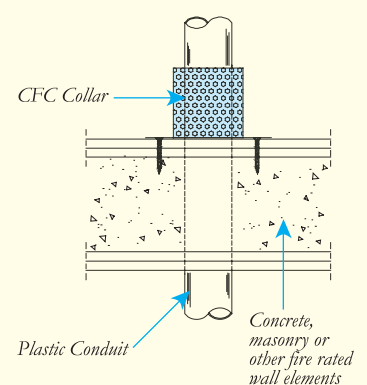
Conduit Collars Protect Plastic Pipes As Small As 25mm

Expanding and Complementing the leading quality range of PROMASEAL® fire collars, CFC is a flat strip with intumescent material in lengths to suit 32mm pipes. It simply has to be bent around the pipe and fixed into place. If necessary it can also be cut shorter to fit smaller pipes.

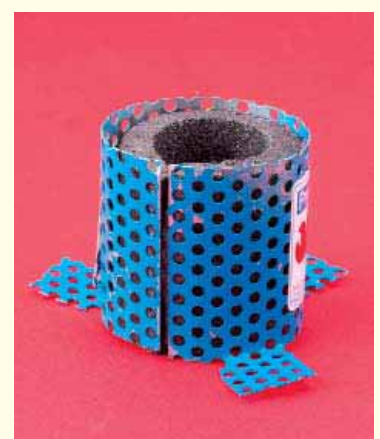
CFC PROMASEAL® Conduit Collars, successfully tested to 2 hours fire rated integrity, comply with the requirements of the Building Code of Australia.

The preformed casing contains Graftex intumescent compound which maintains the fire rating of a 2-hour fire wall when fixed around uPVC conduits. The Graftex may need to be trimmed to allow the collar to fit for riveting around smaller conduits (eg. 25mm).

These collars are supplied in boxes of 10 but can also be purchased individually. 



Installation Guide



Laymen's Guide To Fire-Resistant Ductwork - WHY, WHERE & HOW

Why Fire-Resistant Ductwork

Ductwork is required to maintain fire-resisting compartmentation. A general requirement exists worldwide to ensure that a building is provided with a level of structural fire protection and compartmentation such that the building is capable of surviving a full burn-out even if sprinkler systems are installed. This concept allows for the possibility of the sprinklers either failing to operate effectively (due to poor maintenance), equipment failure or the inability to control an unexpectedly growing fire.

1. Ductwork system fire risks

1.1 Extraction systems – fire may be drawn into the system or may develop within it as follows:

- Flames and hot gases from the room or diffused into the system dependent on relative pressure conditions.
- Hot sparks diffusing or drawn into the ductwork may ignite combustible insulation, filters, deposits etc. within the system or hot gases may undergo spontaneous ignition when mixing with air from, for example, a branch of the ductwork system.
- Heat conducted through the wall of the ductwork (during repair, for example) may ignite combustible insulation, filters, deposits etc.

1.2 Supply systems – a supply system may cause or spread fire as follows:

- Fan room fires may cause sparks or flame to travel through the system igniting combustible insulation, deposits etc.
- Fires within the room or space in which the ductwork is sited may cause ignition by conduction, through the ductwork wall, of combustible insulation, filters, deposits etc.
- Fire may enter the system against the flow, given high overpressure within the fire room or space.

(continued on the right)

1.3 Ductwork without forced flow

In ductwork without forced flow, the circulation fan is cut off, or where fire dampers at compartments walls or floors have isolated the compartment.

1.4 Fire spread within the ductwork system

The movement of flames and fire gases is similar to that of hot smoke as described in 1.1 above. Where natural convection, buoyancy or expansion effects are sufficient to overcome the air velocity whilst the fan is still working, fire can spread over any combustible material within the ductwork against the air flow, assisted in this case by radiated heat and fully oxygenated air; where combustible lightweight insulating material is used as a lining to a duct wall, this can result in rapid fire spread.

2. Break-in of fire into the ductwork system

2.1 The potential for this situation occurring where ductwork (be it supply or extraction) passes through a room or space which is affected by fire is limited if there are no openings (eg. grilles) into the ductwork, providing that the integrity of the ductwork remains unimpaired, and combustible insulation, filters or deposits etc. are not present within the ductwork. Failure of integrity of the ductwork at any point can cause fire within the ductwork system.

2.2 The risk of fire breaking into the ductwork may be summarised as follows:

- Ignition of materials within the ductwork by conduction.
- Failure of integrity of the ductwork, for example by failure of joints or flexible connections due to thermal expansion or failure of the support system.

3. Fire spread by ductwork into adjoining areas

There is potential for fire spread into adjoining areas when the un-insulated ductwork containing fire or hot gases passes through a room or space unaffected by fire but within which there are combustible materials adjacent to the ductwork.

Where Fire-Resistant Ductwork Systems In Buildings

1. Recommendations for ductwork passing through escape routes

BS 5588: Part 9: 1989 offers the following recommendations:

- Any ductwork passing through a protected stairway, lobby or corridor should be fire resisting.
- In single stairway buildings, the ductwork enclosure should be imperforate where it passes through the stairway or any protected lobby or protected corridor.
- In multi-stairway buildings, access panels within protected escape routes should not reduce the fire resistance from inside of the ductwork enclosure.

2. Pressurisation ductworks

BS 5588: Part 4: 1978 offers the following recommendations:

- The operating conditions for a pressurisation system should not lead to the closing of fire dampers, but they could create a hazard in the case of pressurised lobbies if a random mechanical failure of a fusible link occurred when the pressurisation fan is started. To avoid this problem, it is recommended that fire dampers be omitted.
- The need for fire dampers can be avoided if the duct is situated wholly within a protected enclosure or the duct itself is fire resistant.
- Fire dampers operated by remote means, e.g. smoke detectors or fusible links placed outside the ductwork, should not be incorporated in a pressurisation air supply system.

3. Smoke extraction ductworks

BS 5588: Part 10: 1991 offers the following recommendations ductwork used for the purpose of smoke extraction:

- Air-conditioning/ventilation ductwork used for smoke ventilation should be adequately protected against fire penetration where it is routed beyond a fire-resisting barrier. If the ductwork requires fire protection to be installed external to the ductwork, the fire protection should be adequately supported such that it will remain in place and retain its effectiveness when subjected to fire from either side of the ductwork. Additional insulation should be supported from the building structure unless the ductwork supports are designed to bear the additional load.
- Fusible link type fire dampers should not be fitted in the ductwork.
- The construction of the ductwork should be adequately braced to maintain the integrity of the ductwork at the high temperatures and pressures that may exist, and should be designed to accommodate thermal expansion without distortion or damage.
- All materials associated with air-conditioning/ventilation systems used for smoke ventilation system should be designed to ensure that the system will continue to operate when any part is exposed to fire.
- Unless the design of the smoke ventilation system specifically does not allow the possibility, fire/smoke dampers which are operated by smoke detectors associated with air conditioning/ventilation system(s) should all fail-safe to the correct position for the system(s) to work satisfactory in the smoke ventilation mode. Where there is no fail-safe position (e.g. where one fan or one set of fans are intended to serve one of several smoke control zones, selectable by controllable dampers), the reliability of the dampers should be acceptable to the approving authority.

4. The particular methodology to be used is sometimes prescribed in Code of Practices or local legislation

For example, section 39 of BS 5588: Part 11: 1997, Fire Precaution in the Design, Construction and Use of Buildings – Code of Practice, state smoke control provisions for:

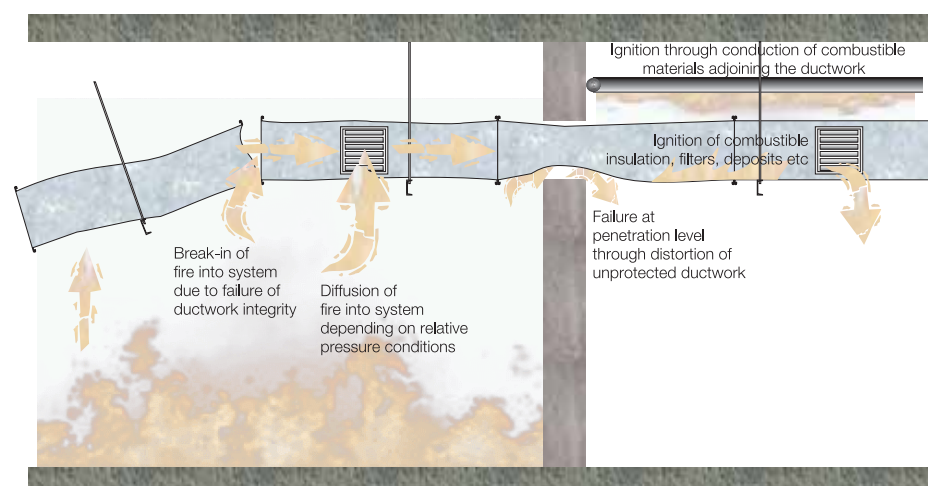
(continued on the right)

4.1 Enclosed car parks – which are mechanically ventilated

Car parks must have separate and independent extraction systems, because of the polluted nature of the extracted air. Due to the fire risk associated with car parks, these systems should be treated as smoke extraction systems and therefore maintain a minimum of 75% cross-sectional area under fire conditions in accordance with BS 476: Part 24. Fire dampers must not be installed in extraction ductwork serving car parks.

4.2 Basements – ductwork from basements must be fire rated

If basements are compartmented, each separate compartment must have a separate outlet and have access to ventilation without having to gain access (i.e. open a door to another compartment). Basements with natural ventilation should have openings not less than 2.5% of the floor area arranged to provide a through draft with separate fire ducts for each compartment.



4.3 Non domestic kitchen extraction systems

Where there is no immediate discharge to atmosphere, i.e. the ductwork passes to atmosphere via another fire compartments, fire resistant ductwork must be used. Kitchen extraction ductwork presents a particular hazard as combustible deposits such as grease are likely to accumulate on internal surfaces. Therefore, all internal surfaces of the ductwork must be smooth. A fire in an adjacent compartment, through which the ductwork passes, could lead to ignition of the grease deposits, which may continue through the ductwork system possibly jeopardising the safety of the kitchen occupants. For this reason, consideration must be given to the stability, integrity and insulation performance of the kitchen extraction duct which should be specifically tested to BS 476: Part 24 for a kitchen extraction rating.

- Access doors for cleaning must be provided at distances *not* exceeding 3 metres.
- Fire dampers must *not* be used.
- Use of volume control dampers and turning vanes are *not* recommended.

Further information on kitchen extraction systems can be found in the HVCA publication DW/171 Specification for Kitchen Ventilation Systems.

4.4 Hazardous areas

There are other areas within the building where the Building Control Officer or the Fire Officer could state a requirement for fire resisting ductwork, eg. areas of high risk, boiler houses, plant rooms, transformer rooms etc. **PFT**

預防設計

如今，汽車的製造必須符合一定的要求，如造型、功能以及安全性能等就是其中的一部份。事實上，將現代建築的建造與之相比一點也不過份。

例如，許多汽車首先必須具有一個安全結實的車體。如果車體自身的完整性存在問題的話，其他的安全措施，如緊急氣囊和安全帶也就形同虛設。因此，一個可以讓司機安全舒適地置身其中的鋼構造即是汽車的安全預防設計原則。預防任何不可預見的突發事故，保障使用者的安全。

可以說，現代建築設計原則的原理與此非常相似。將一系列堅固的構件建造於一個堅固的地基之上，絕大多數建築中都包涵了眾多的安全設計因素。當火災發生時，如果沒有被動防火系統與主動滅火系統相配合，或設計不當的話，類似水噴淋等主動滅火系統的作用也非常有限。

顯而易見，被動防火保護屬於預防設計，這類多功能的構件穩定、可靠，隨時準備給建築物及其使用者提供長期的防火保護，因此，這類構件在消防設計中是首要的。

預防定義

預防這個詞暗示了"採取主動控制方式"。預防同時意味著在一個可能事件發生之前以及發生過程中採取行動。在任何一個設計完善的消防系統中，這種預防為主的觀念賦予了被動防火系統承擔關鍵性的角色。同樣，預防設計原則使保全成為一個系統的防火保護解決方案的提供者。

消防系統設計

現代汽車通常被設計具備最適條件的功能。現代建築也應該並且可以根據預防設計原則來建設，從而達到其預定功能，最大程度地保證建築環境及其使用者得到有效、高度的安全保護。

預防為主的觀念應該在項目啟動的初期就得到重視，它首先起源於業主的理解，然後傳達給設計師，使之在設計中體現建築防火規範和標準的正確思路。通過這種方式，建築的消防系統，即被動防火系統與其它保護系統和諧地相互配合，能夠最大程度地給建築提供全面有效的保護。

被動防火的積極性和預防性

如果仔細研究"被動防火"在"消防"中的來龍去脈，我們會發現"被動防火"措施往往成為消防工程師和消防專家的"主動"合作伙伴。防火的全面概念從而得到了加強。在需要時，一個消防系統中的所有措施會共同發揮作用，保護整體結構的完整性。

將"被動"轉化為"預防"

因此是時候更新概念了。我們應該將"被動"理解為"預防"，並且將被動防火從其普通意義上提升，使之與所有消防系統形成積極的、必要的聯系。

我們只需簡簡單單地將傳統意義上的被動系統和與之相配合的其它系統重新定位，視其為一個完整的消防系統。這樣，預防(被動)系統就會被主動地考慮為積極地預防，而不僅僅是靜止地被動。

PROMASTOP® UniCollar® 保全通用阻火圈 於香港之首項 實行工程

Hong Kong Housing Authority

香港房屋委員會(Hong Kong Housing Authority)於今年二月份首次採納革新的保全通用阻火圈引入其多項工程。

功用多面化的通用阻火圈有效地在塑膠管線所穿越的防火分區樓板形成的孔洞間，阻止了煙火蔓延的可能性，從而確地該樓板的耐火極限。

其獨特之多功能化及節省空間的設計更應對了消費者的經濟預算。

再說，這項工程安裝分銷商 Brisky Ltd. 也贊同這種阻火圈很明顯的比其他各種普通阻火圈更容易在短時間內安裝處理。 PFT

保全防火領域 最新技術發展

— PROMATECT®-L500 防火板空調管道防火包敷

送回風管道通常穿越防火分區及避難區域，保全針對這類金屬風道設計了一種新的保護系統。PROMATECT®-L500 為不燃材，比普通硅鈣板質量輕，而抗壓強度高達2.5N/mm²。因此，它可以穿牆風管和風機接口處提供可靠的防火保護。

— VICUCLAD® 防火板電氣及機械管道防火包敷

理論上，火災逃生通道及避難區域應該為嚴格防火單元，然而，現代建築的結構複雜，不可避免在這些區域安裝電氣及機械設備管線。VICUCLAD® 防火板為不燃材，是由特殊工藝加工而成的獨特的多孔蛭石板，在高溫下不變形，並能提供良好的絕熱性。因此被廣泛應用於電氣及機械管道的防火保護。

— PROMASEAL® 防火封堵系列新發展

PROMASEAL® 防火封堵系列繼續為保證防火分區的安全性尋找最佳解決方案。經過對各國的規範和標準進行了大量的研究及防火試驗，PROMASEAL® 防火封堵系列又增添了以下新系統及產品：

- PROMASEAL® Bulkhead Sealer System 防火塗料系統
- PROMASEAL® Expansion Joint Strip 防火伸縮縫條
- PROMASEAL® Switchbox Intumescent 電纜電線防火盒

— 完善的保全阻火圈系列對各種塑膠管提供多樣化保護

阻火圈主要應用於塑膠管和電纜穿越防火構件處，可以阻止火焰通過這類易燃管線蔓延，從而保證該構件的耐火極限。保全阻火圈一般由殼體和膨脹內芯組成，當火災發生時膨脹內芯在壓力下膨脹並有效封堵洞口。保全阻火圈的殼體設計獨特，可以在塑膠管安裝前或安裝後安裝。PROMASEAL® 保全阻火圈不含石棉、纖維或其它有害物質，並且不受氣候條件及潮濕環境的影響。保全公司已發展了一個完善的阻火圈產品系列應用於各種塑膠管系統。



- FCS PROMASEAL® 標準型阻火圈
圓盤底板，獨特扣環設計，可在管道安裝前或後安裝，保護樓板或牆體系統。
- FC PROMASEAL® 方盤標準型阻火圈
方盤底板帶圓角，獨特扣環設計，與FCS型一樣，可在管道安裝前或後安裝，可反覆拆裝。
- FCC PROMASEAL® 預埋型阻火圈
不銹鋼殼，在樓板澆鑄前固定於框架上。
- FCCP PROMASEAL® 塑料殼預埋型阻火圈
功能與FCC型一樣，但由於採用塑料殼並配備了延長管，FCCP型更輕，更容易安裝，並保證塑膠管道順暢。參見 PFT No.6
- FCW PROMASEAL® 入牆型阻火圈
安裝時嵌入磚混或輕質防火板牆體。
- FCD PROMASEAL® 嵌入型阻火圈
安裝時可從樓板預留孔的任意一端嵌入。
- CFC PROMASEAL® 套管型阻火圈
專門對32mm口徑電纜套管進行防火保護，必要時可現場切短。
- UC PROMASTOP® UniCollar® 通用阻火圈
參見 PFT No.6。 PFT

FAX NOW

BUSINESS REPLY COUPON

Please send me more information of:

Tick here

- PROMASTOP® UniCollar®
- More Proactive Fire Protection Solutions
Please specify

- Laymen's Guide to Fire-Resistant Ductwork

- Promat Passive Fire Requirements for India Buildings

- Others
Please specify

My Name: _____
 Position: _____
 Company: _____
 Nature of Business: _____
 Address: _____

 City _____ Postcode _____
 Country _____
 Tel: _____ Fax: _____
 Email: _____

Please complete your personal data and fax to your nearest Promat office, as listed on page 8.

● Fire Disaster In Unprotected Disco Hall

Tragedy Strikes In Luoyang



More than 300 people died in a fire which swept through Dongdu Department Store in Luoyang, Henan Province. Some 135 men and 174 women tragically lost their lives in the Christmas Day 2000 blaze.

Early investigations indicate that "building malpractice" in the basement of the building was a likely cause of the fire, which quickly spread to the fourth floor dance hall. Here, more than 200 people were stranded in a space filled with thick, acrid smoke. Some smashed windows and then jumped onto safety mats provided by local firemen who were prevented close access due to intense heat.

Much Action, Few Rescued

In later announcements, the provincial government confirmed that it despatched some 200 medical personnel and 32 ambulances to the scene of the tragedy. Despite these measures, most victims died from smoke inhalation and suffocation.

More than 800 policemen and firemen in 26 fire engines also attended the fire. Nine hospitals in Luoyang treated several dozen people but only seven were discharged after emergency treatment.

Create Better Understanding For Safety Measures

The Provincial Governor, Mr Li Keqiang, and several leading government officials rushed to the scene of the fire to direct rescue work. An investigation into possible causes of the fire was soon launched.

In a separate but related development, the Ministry of Public Security issued an urgent circular calling for the inspection of hotels, restaurants, singing and dancing halls, and construction sites. All singing and dancing halls without certification or in violation of fire protection regulations were to be closed.

The benefits of Promat Proactive Fire Protection Systems are likely to be better understood against this tragic background.

A History Of Past Deadly Fires

The worst fire in China happened in 1977 when 694 victims – sadly 597 of them children – died in a Xinyang movie theatre blaze. A dance hall fire in 1994 in the northeastern province of Liaoning killed 233 people. Many of the victims were asphyxiated behind locked emergency exits. PFT

● Launch of One-Stop Technical Manual for NBC India

Introduces Promat Passive Fire Requirements For India Buildings

Passive Fire Requirements of the Singapore Fire and Building Code was launched in the island republic in 1999. It quickly proved a useful technical handbook, particularly at interpreting local regulations and increasing levels of awareness for Promat Passive Protection amongst specifiers.

The concept of passive fire protection is relatively new amongst building industry developers, engineers and architects in India.

Nevertheless, the December 2000 launch of a new one-stop technical manual for the National Building Code (NBC) of India recognises the need to create similar awareness for safe construction systems in India.

Providing a comprehensive overview of passive fire protection requirements in accordance with the NBC, the user-friendly handbook clearly demonstrates useful technical data and numerous applications. The manual also introduces Promat's market leader solutions in products, systems and service. These include fire-rated partitions, ceilings, ducts, structural steel, E & M enclosures and fire stopping materials.

All construction systems are tested and approved according to observed and accepted fire test standards.

The guidelines in the manual are organised and divided into general, specific or high-rise construction requirements, reflecting provisions of the National Building Code of India standard. In this manner, readers are able to read and understand a comprehensive overview of passive fire protection practices and expected benefits.



The new manual retails at Rs.250 (US\$7) only. Orders from readers in India can be booked through the **Business Reply Coupon** on page 7. Alternatively, simply email your nearest Promat office or agent. PFT

Proactive Fire Protection Throughout The Region – The Promat Asia Pacific Network

Regional Headquarters, Malaysia

• Promat International (Asia Pacific) Ltd.
7E Jalan 1/57D
Off Jalan Segambut
51200 Kuala Lumpur
Tel: (60-3) 6250 2880
Fax: (60-3) 6250 1159
E-mail: promat@po.jaring.my

Australia

• Sydney
Promat Fyreguard Pty. Ltd.
Unit 9, 175 Briens Road
NSW-2152 Northmead
Tel: 1800 30 20 20
Fax: (61-2) 9630 0258
E-mail: mail@promat.com.au

• Adelaide
Promat Fyreguard Pty. Ltd.
12 Rosslyn Street
Mile End South
SA-5031 Adelaide
Tel: 1800 30 20 20
Fax: (61-8) 8352 1014
E-mail: fyre@promatfyreguard.com.au

• Melbourne
Promat Fyreguard Pty. Ltd.
No.2, 202 Lorimer Street
VIC-3207 Port Melbourne
Tel: 1800 30 20 20
Fax: (61-3) 9645 3844
E-mail: promat_fyrevic@primus.com.au

China

• Beijing
Promat Representative Office
CTS Tower, Room 1501
No.2, Beisanhuan East Road
100028 Beijing
Tel: (86-10) 6460 4851
Fax: (86-10) 6460 5297
E-Mail: promat@public2.east.cn.net

• Shanghai
Promat Representative Office
Universal Mansion, Room 2603A
168 Yuyuan Road, Jingan District
200040 Shanghai
Tel: (86-21) 6249 6205
Fax: (86-21) 6374 8619
E-Mail: promat@public3.sta.net.cn

• Guangzhou
Promat Representative Office
443-1 Fangcun Dadao Zhong
Fangcun District
510360 Guangzhou
Tel: (86-20) 8189 9286
Fax: (86-20) 8189 9286
E-Mail: promat@public.guangzhou.gd.cn

Hong Kong

• Promat International (Asia Pacific) Ltd.
C.C. Wu Building, Room 1010
302-308 Hennessy Road
Wanchai
Tel: (852) 2836 3692
Fax: (852) 2834 4313
E-mail: apromath@netvigator.com

India

• Promat Fire Protection
(Division of Eternit Everest Ltd.)
Ashok Bhawan
93 Nehru Place
110019 New Delhi
Tel: (91-11) 643 2568
Fax: (91-11) 646 4006
E-Mail: info@eternit-everest.com

Indonesia

• Promat Indonesia
(Division of Eternit Gresik)
Gedung Nilakandi, Lt.3, Room 1B
Jalan Roa Malaka Utara No.1-3
11230 Jakarta
Tel: (62-21) 690 0096
Fax: (62-21) 691 0969
E-mail: promindo@indosat.net.id

Malaysia

• Promat (Malaysia) Sdn Bhd.
7E Jalan 1/57D
Off Jalan Segambut
51200 Kuala Lumpur
Tel: (60-3) 6250 2880
Fax: (60-3) 6250 1158
E-mail: promat@po.jaring.my

Philippines

• Promat International (Asia Pacific) Ltd.
Unit 1006, 10th Floor
Medical Plaza Makati
Amorsolo cor. Dela Rosa Street
Legaspi Village, Makati City 1200
Manila
Tel: (63-2) 751 6981
Fax: (63-2) 751 6980

Singapore

• Promat Building System Pte. Ltd.
371 Beach Road
#14-03 KeyPoint
199597 Singapore
Tel: (65) 294 9689
Fax: (65) 294 9783
E-mail: promavic@singnet.com.sg

The Promat Asia Pacific Website
www.promat-ap.com