

# PASSIVE FIRE TRENDS

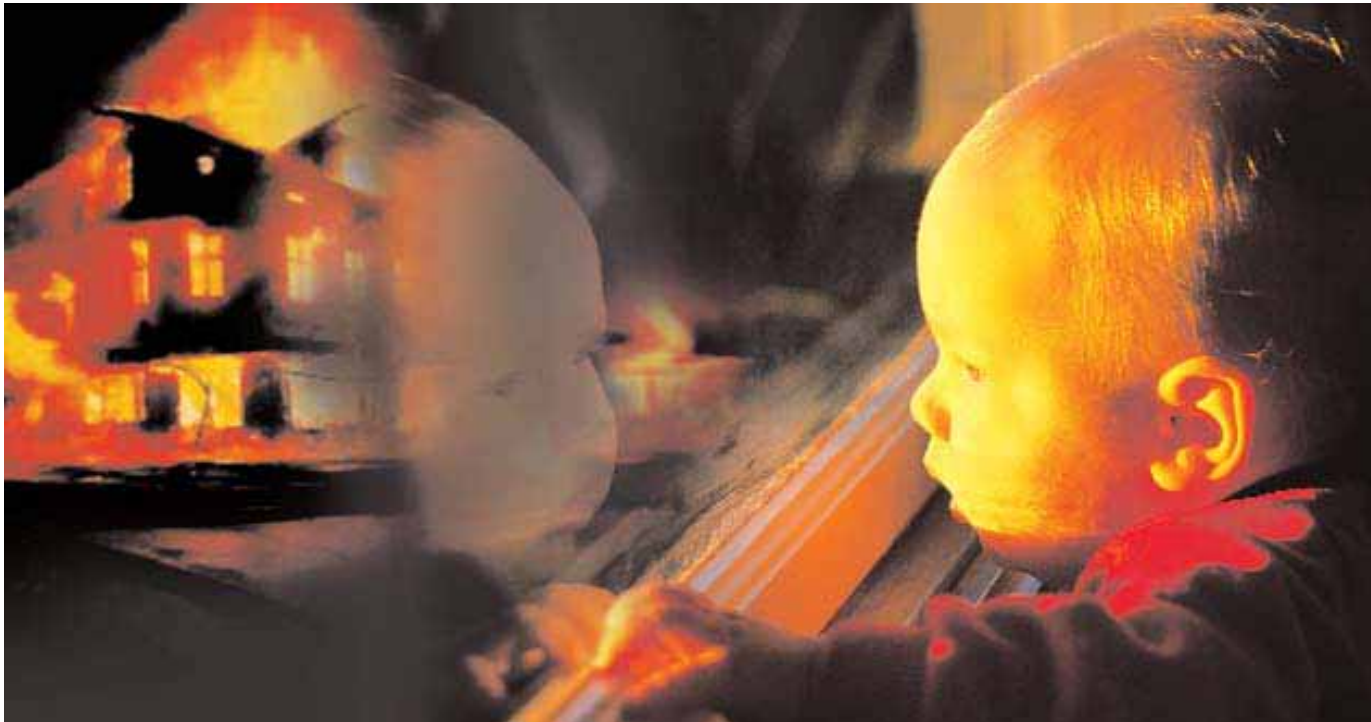
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for Asia Pacific Building Industry Professionals

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## ● Fire Stopping Products Developed To Meet Future Challenges

# Prevention Better Than Cure?



If the idea that “prevention is much better than cure” is a well-accepted benchmark, it is also a concept wide open to interpretation – even within the fire sciences industry, an industry noted for pragmatic conservatism.

Translate the same idea to the fire protection industry and, clearly, the concept of “fire stopping” can mean different things to different people, even within an individual sector of this highly diversified industry. The meaning, value and significance of “fire stopping” depends to a large extent on your point of view...it can all be simply a matter of perception.

### Different Understanding

Fire engineers, not surprisingly, tend to take a broad holistic approach – after all, fire can and usually does have the unpleasant habit of striking where and when least expected. Fire engineers therefore expect minimum standards in products and systems up to, and exceeding, the challenge of fire anywhere, anytime.

Architects and engineers, on the other hand, are inclined to look at “fire stopping” as a subsidiary component of design, structural or functional integrity. Obviously very important but an integral part of a broader scheme of things.

Developers, always sensitive to the pragmatic economic realities of market forces, rationalise “fire stopping” generally as a cost component. Necessary from a legal and humanistic aspect but yet another overhead to factor into bottomline costs in price-sensitive markets.

For legislators and government agencies, increasingly aware of what can and cannot be done to prevent the loss of property and lives, perhaps justify looking at “fire-stopping” as just another vital link in a long chain of regulatory evolution. More time and comparative information always seems to be required.

At the bottom, or top of the ladder – again depending on your perception or point of view – the low level of awareness among building users for “fire stopping” principles generally is probably vague at best. Lack of concern or knowledge sadly becomes a reality only when tragedy strikes close to home.



We have an enviable array of tested products and systems for virtually every application, backed by knowledgeable staff in offices throughout the Asia Pacific region.

### Cause and Effect, and Change

The direct links between cause and effect – conversely, between fire stopping principles and fire tragedies – all too often then become an unfortunate case of closing the gate only after the horse has run away.

In some cases, something effective for future prevention is done only after the smoke clears. In most cases this is usually a case of too little too late, even if the implementation of new rules and fire prevention systems are well-intended.

Fortunately, change is continuing and continual process – for the better, more often than not – no matter how much we humans resist change.

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## PEOPLE POWER

We are now well into a new millennium. It may look a lot like the old one but, as a well-known singer once prophetically said, "the times they are a'changing". Nearing the close of the first business year of 2000, many economies are seen to be picking up. The immediate future looks much more optimistic than it did a year ago, particularly in the Asia Pacific region, although there are some cautionary notes as we go forward with some confidence. Nevertheless, perhaps the present is a timely moment to pause for a cause – to reorder our priorities and to reconsider the human element of our rather complex business?

As we pursue bigger and better marketing opportunities and more and more sales with newer and more effective products, it is all too easy to forget that, at the end of the day our business is definitely all about people, their welfare and their safety. True, in pursuit of these objectives we deal with people but at that level we are more often than not just attempting to close sales and move products. This is surely good in itself, but is it enough to sustain us as a business enterprise over the long term?

I believe that if we remember that our products and systems have been developed by smart people to have a direct and beneficial effect on the ultimate users of buildings and the built environment, we will achieve not only our company's commercial objectives but also become more effective at our jobs. Who knows, we may even become better humans in the process, and that's a real bonus, for everyone!

If we work to this higher purpose, in partnership with modern management principles and the best Promat passive fire products available, I am convinced that our combined People Power will certainly help us more than achieve our individual career missions and our company's well-defined business objectives.

In this issue, Passive Fire Trends no. 6, we focus on Fire Stopping – what it means and what we are doing to further and extend its cause.

In so doing we review in considerable detail the advanced fire stopping products, including the brilliant new Promastop® UniCollar range, all developed and marketed by Promat, a widely acknowledged passive fire protection market leader.

Also in PFT#6 we take a brief look at the new PolyCollar® from Australia, a comparison of British, Australian and China fire test standards, as well as reviews of an interesting technical report from the Philippines.

An article by the Chief Fire Officer of the Delhi Fire Service, India – questioning and examining the adequacy of passive fire protection – certainly provides food for thought. A quick look at Promat Australia's Contractors' Guide To Passive Fire Protection booklet, recently launched in Sydney for nation-wide use, rounds out this well-balanced issue of PFT.

In conclusion, as times keep on changing with new challenges, I look forward to continuing our good work together as a truly effective Promat team...surely a good example of people power at its best.



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## ● Recommendations From A Philippine Technical Report

# "Acceptable Methods" of Fire Stopping Should Be Promoted

The construction industry of the Philippines is no exception to the worldwide trend of increased usage of plastics. This is due to a number of benefits, with lower costs and ease of installation usually at their core. The combustible nature of many plastics, however, also increases the risk of fire spread. The Philippines is no stranger to fire tragedy. The Ozone Disco fire in Quezon City in 1995, for example, caused the loss of 162 lives.

The overall phenomena therefore requires a "determined effort by the Bureau of Fire Protection to promote 'acceptable methods' of firestopping or fire safety construction".

"Acceptable methods" includes passive fire products and systems, as well as the more widely accepted active systems of fire stopping and prevention. This was stated recently in a BFG-DILG Technical Report on the Penetration of Combustible Pipes Through Compartment Walls and Floors.

The report was prepared by Nelson S. Se, Sr. BSCE, BSEnSE, PGOHS and MSE, Associate Professor, College of Engineering, National University of the Philippines and Chief of the Fire Science and Technology Office of the Bureau of Fire Protection, Department of the Interior and Local Government.

The report was edited by Mr. Rudolfo John. O. Teope, Ph. D., Ed. D., a consultant to BFP-DILG. Associate Professor Se is a leading fire sciences authority in the Philippines.

The term "acceptable methods" is usually defined as those (methods) that comply with established standards not limited to Philippines standards, but also those already acceptable in the market place that are based on tested or proven international standards.

With this as a guide, the Bureau must undertake and promote adoption or adaptation of technology as a natural process of technical capability development, according to Associate Professor Se's technical report.


The report also suggests that the process of technical capability development can be done through the establishment of the National Fire Science Institute. A future NFSI would provide research and development, testing facilities and acquisition of expertise for validation and maintenance of quality standards.

Associate Professor Se also believes that the Bureau of Fire Protection must be willing to explore the possible development of a NFSI through dynamic partnership with private sector/NGO organisations as an integral part of its strategy promoting fire safety or fire prevention and consistent with the state policies.

For example, the application of a fire collar or pipe fire collar as a method of firestopping is a highly acceptable tool of "good practice". This was observed as the present trend in fire safety construction in USA and Europe, and similarly adopted in Singapore, Malaysia and other Asian countries.

Highly acceptable tools of "good practice" are considered one of most commendable ways of promoting or incorporating the fire safety construction required by the Fire Code of the Philippines.

The report also cites pipe collars as an effective fire stopping system to reduce the risk of fire spread via plastic pipes between compartments.

For a full copy of the Technical Report on the Penetration of Combustible Pipes Through Compartment Walls and Floors by Associate Professor Nelson S. Se, Sr. BSCE, BSEnSE, PGOHS and MSE, please refer to the Business Reply Coupon (page 7). 

*The Philippine Technical Report  
was brought to you by*



The Bureau of Fire Protection 2000

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# PROMASEAL® PolyCollar – A New, Easier to Install Cast-in Collar

After its launch late last year, sales of the new PROMASEAL® PolyCollar have exceeded expectations. Well-received by the market, the PROMASEAL® PolyCollar is comprised of a polyethylene casing with PROMASEAL® Graftex as the intumescent active filler and a 'SlabGuard' or extension tube fitted to the collar.

The SlabGuard is designed to stop poured concrete filling the collar void.

This unique product feature enables the plumber or contractor to install pipes immediately after slab curing without removing temporary lengths of pipe usually employed for the same but not-so-convenient purpose.

Available in kit form, the PolyCollar Kit is easier to install and lighter to carry. Its distinctive bright Promat blue colour makes for easy storage, ordering and on-site identification.

Equally newsworthy, additional fittings can be used to adapt PolyCollar to different pipe sizes.

Typical of well-researched and developed Promat products, it is not surprising that the PolyCollar range is tested to suit different pipes of different plastic types.

Promat Fyreguard Pty. Ltd. has been the leading supplier of fire collars in Australia for some years.

In order to maintain market leadership, Promat decided about two years ago to develop an entirely new fire collar based on a polyethylene casing to replace the spun heavy steel casings used by most other manufacturers and suppliers.

This timely decision involved extensive market research and design investigation which focused on unique product characteristics.

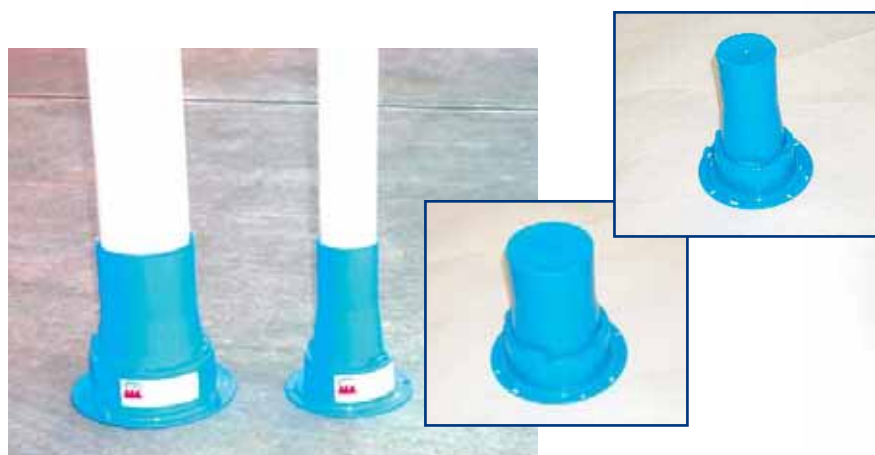
The only collar to be produced to this strategy is the "cast-in" type which is usually fixed to concrete formwork prior to pouring floor slabs. Cast-in collars represent approximately 60% of total collars sold in Australia.

The exposed types of fire collar – the FC range, for example – would continue to be fabricated in steel.

Promat Australia produces both PolyCollar and the standard steel casing fire collars for the local market and for Promat companies throughout Asia and Europe.

Full technical and marketing information about Promat's remarkable new PROMASEAL® PolyCollar is readily available, please refer to the Business Reply Coupon (page 7) or email your nearest Promat office. **PFT**

*The distinctive bright blue colour makes on-site identification easy. Additional fittings can be used to adapt PolyCollar to different pipe sizes.*



## PREVENTION BETTER THAN CURE? (continued from page 1)

### New Products Come To The Market

Mindful of this process, a healthy and dynamic fire technology business sector has developed in recent years, bringing new and effective products and systems – both passive and active – quickly to the market.

This trend is frequently looking at old problems in a new way, applying new-age materials, and developing new products that solve old problems more effectively than in the past.

### Leading Developers of Passive Fire Protection Products

Promat International is a leading exponent of passive fire protection generally and is no exception to this on-going process. The result of significant levels of investment in research and development, and many years of practical hands-on experience gathered from markets around the world.

While the industry generally is receptive to change and aggressively develops better products to meet new challenges, it is usually left to private sector organisations, such as Promat, in partnership with government authorities to ensure that fire protection delivers the benefits...of saving lives and protecting the built environment.

### Making Fire Obsolete?

It is unlikely that fire will become obsolete any time soon – sad but true – no matter how hard we might try.

As the built environment and demands upon it become more complex, a deep awareness of fire, its effects and how to deal with it effectively can have a long-lasting impact on society and the lives of our fellow citizens.

The ability to develop and effectively market products such as passive fire protection systems is not only beneficial but safe for society. Making the world a safer and therefore better place to live in has a purpose that also stretches beyond bottomline considerations.

It may seem unnecessary at times but prevention is always better than cure. In the final analysis it is a concept that Promat and others salute and endorse. **PFT**

● **Sophisticated Fire Stopping Product**

# Introducing the Unique Promastop® UniCollar

Fire stopping can seem like a deceptively simple concept – to stop the spread of fire as effectively and quickly as possible, regardless of the time and place. But as is well known, dealing with something as unpredictable by nature as fire is nearly always a tricky business. And much easier said than done.

Fortunately, the level of fire sciences and fire technology has developed enormously in recent decades – in parallel with much more sophisticated building methods and materials, hand in hand with higher levels of knowledge and general awareness.

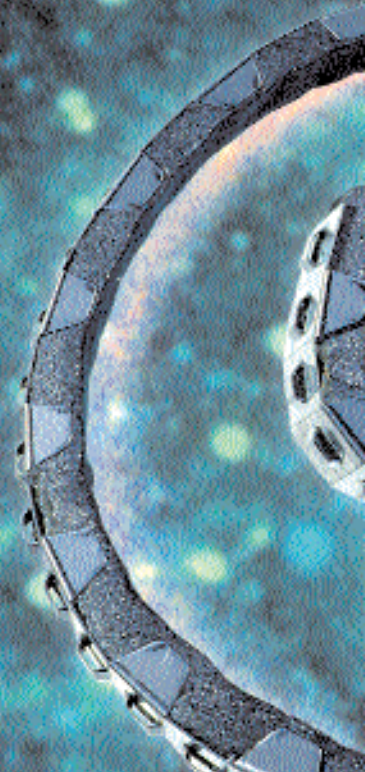
Promat products and systems are typical of the highly advanced passive fire protection products on the market today. The silent and frequently unseen heroes of many a passive fire protection scenario, Promat products are, without doubt, worldwide leaders in the business of passive fire protection.

The company has an extensive range of documented technical information available through a databank of published test reports from various internationally-recognised standard bodies.

Promat manufactures a wide range of purpose-built passive fire protection systems and products to internationally accepted safety standards. The company's core business is passive fire protection, and passive fire protection only. Nothing else. Promat products range from fire-rated boards and fire-rated glass to an integrated system of fire stopping products.

The result of much research and development, the new Promastop® UniCollar is a unique and new concept fire collar. It can be used on virtually any sized PVC pipe.

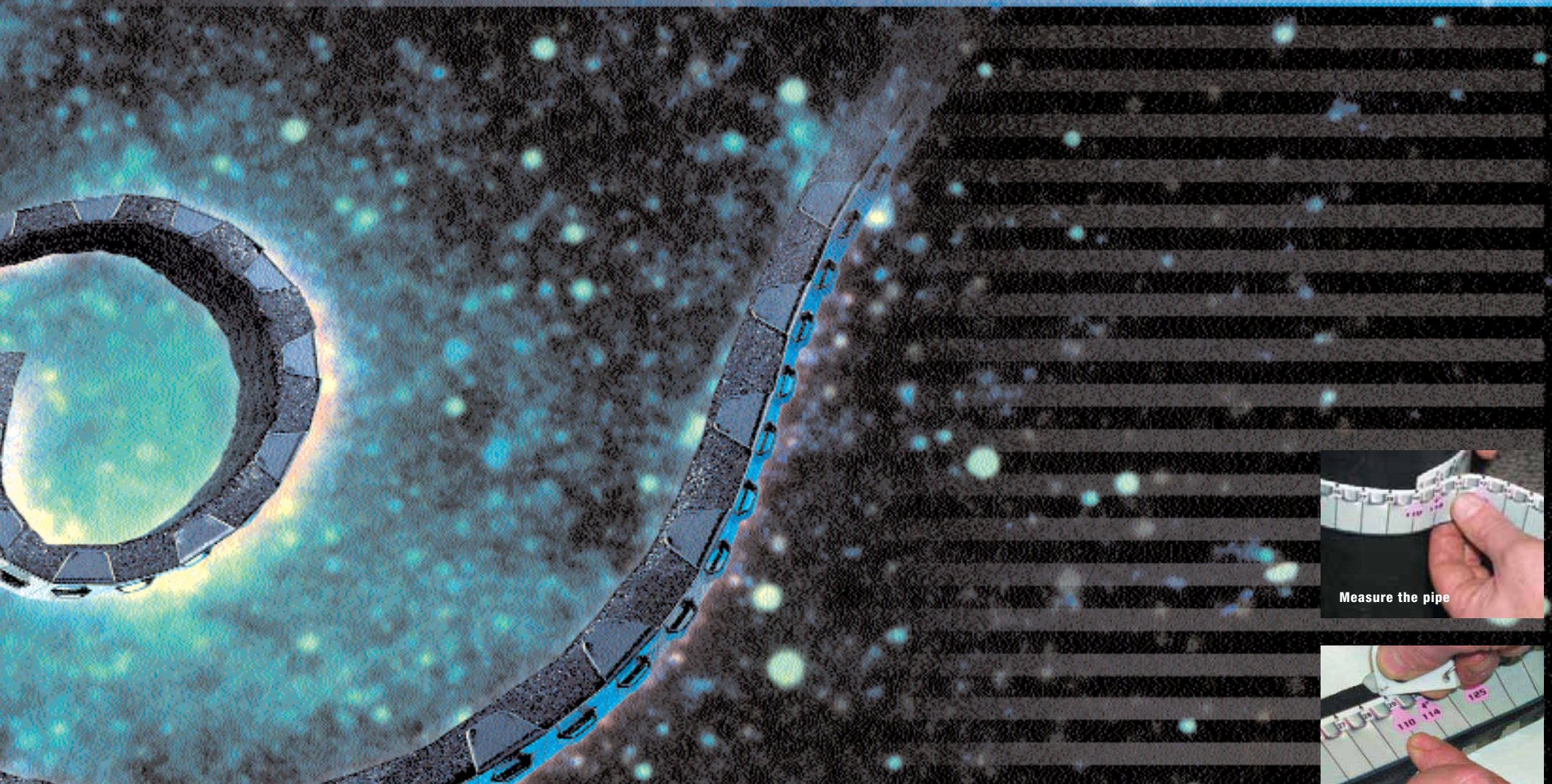
The Promastop® UniCollar has been designed to provide optimal fire stopping capabilities, where it is installed, to create significant savings by minimising transportation, storage and installation costs. Supplied in approx. 2,190mm long strips, the Promastop® UniCollar is extremely easy to install as it can be cut and installed on-site with very little worker training.



PROMASTOP® UniCollar is carefully tested to ensure its efficiency. Test reports are available on request.



# UniCollar



## Benefits of the Collar

- **Single Order**  
Avoids the time consuming issue of tallying up the multitude of pipe sizes in a project
- **Lower Inventory Costs**  
One product covers pipe sizes from 40mm to 150+ diameter
- **Lower Purchase Cost**
- **Simple To Use**
- **Storage**  
Can be stored in 1/4 of the space
- **One Stop Buying**  
All sizes of collars, brackets and fasteners in single package

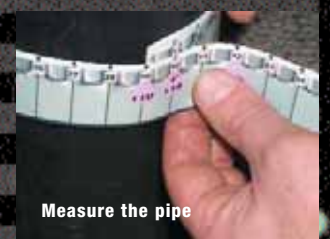
## Easy Installation

Promastop® UniCollar comes to the work site in a boxed strip. The pipe circumference is measured, a strip of Promastop® UniCollar is easily cut to measure and wrapped around the relevant PVC pipe.

The strip of Promastop® UniCollar is then fixed into place around the PVC with metal restraining brackets which are bolted or screwed to the surrounding surface.

Quick. Easy. And a very effective fire stop barrier for every PVC pipe penetration.

The Promastop® UniCollar from Promat...the specialist passive fire protection professionals.



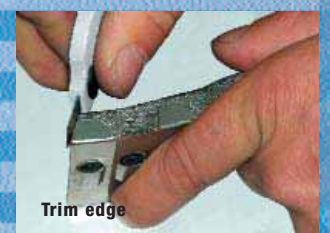
Measure the pipe



Mark at the ready number



Snap on the reverse side



Trim edge



Apply on and join ends



Fix finally

# A Comparison Study on Standards for Penetration Seals

- |  |   |                                 |                            |
|--|---|---------------------------------|----------------------------|
| <b>1 Orientation</b>                         | <b>5 Furnace Control</b>                    | <b>9 Thermocouple Pads</b>      | <b>13 Hose Stream Test</b> |
| <b>2 Test Sample</b>                         | <b>6 Furnace Thermocouples</b>              | <b>10 Pressure Differential</b> | <b>14 Specification</b>    |
| <b>3 Conditioning</b>                        | <b>7 Unexposed Side Thermocouples</b>       | <b>11 Integrity</b>             | <b>15 Reporting</b>        |
| <b>4 Protection of Assembly &amp; Sample</b> | <b>8 Frequency of Measurement (Furnace)</b> | <b>12 Insulation</b>            | <b>16 Commentary</b>       |

|           | <b>BS 476: Part 20 (1987)</b><br><i>British</i>   | <b>DIN 4102: Part 9 (1990)</b><br><i>German</i>  | <b>pr EN 1366.3 (1999)</b><br><i>Europe</i>  | <b>AS 4072.1 (1992)</b><br><i>Australia</i>  | <b>ASTM E814 (1997) / UL 1479 (1998)</b><br><i>United States</i>   |
|-----------|---|--|--|--|--|
| <b>1</b>  | Requires representative specimen in both orientations. For asymmetrical specimens, two tests should be conducted from each side using separate specimens.   | Standard or purpose-made constructions to be tested in both horizontal and vertical orientations. Two specimens in each orientation shall be tested.   | Representative or standard service configurations, tested both in horizontal and vertical orientation.   | Requires full size or representative specimen, and testing in both horizontal and vertical orientation if intended for use in both orientation. Provide standard test configurations.  | UL requires both orientations must be tested unless it can be demonstrated that testing in a single orientation does not affect the results. ASTM does not specify but there are differences in temperature and pressure measurements for the two orientations that, by default, both would be required.   |
| <b>2</b>  | Does not specify projection distances of through penetrating elements. All pipes to be uncapped.  | Must be either standard configuration, or purposed made seals. Through penetrating elements must project 500mm either side. Cables shall be left uncapped on the exposed face and capped on the unexposed face. A pass-through arrangement of the hot gases is made for plastic pipes. | The services shall be installed so that they extend 500mm on each side of the supporting construction, of which at least 300mm shall extend beyond the extremities of the sealing system. No part of the service shall be >200mm from the furnace wall or another service.   | The ends of the service shall be sealed on the exposed side of the furnace, to simulate normal extension through compartment. If the end condition of the unexposed side is unspecified, it shall be left unsealed. The penetrating element shall extend 100mm into the furnace except where the service is a metal pipe with a melting point of >1000°C then it will extend 500mm into the furnace. | The penetrating item should extend into the furnace by 300mm and out of it by 910mm. The end of the item on the exposed face is capped, but uncapped on the unexposed side, unless it is to represent a closed system in which case it may be capped. The periphery of the specimen should not closer be 1.5 x the thickness of the assembly, or 300mm to the furnace edge, whichever greater.   |
| <b>3</b>  | Materials shall at time of test, be at a condition approximating the state of strength and moisture content that would be expected in normal service.   | Materials shall, at time of test, be at a condition approximating the state of strength and moisture content that would be expected in normal service.   | The test specimens shall not be tested until both the strength and moisture content approximate to the values expected in service are attained. Read Annex F.  | The test specimen shall not be tested until both the strength and moisture content approximate the values expected in service are installed.   | Prior to fire testing, each test sample and test assembly is to be conditioned, if necessary, to provide a moisture condition representative to that likely to exist in similarly constructed buildings.   |
| <b>4</b>  | Ambient temperature should be within 5-35°C prior to heating period, and temperature measurements on the unexposed face must be in draught-free conditions.   | Must be located in a closed room with temperature between 15-25°C 24 hours prior to test.  | Provide reference for test frames, and the ambient condition must be 20 ± 10°C. During the test, the laboratory temperature shall not decrease by more than 5°C or more than 20°C.   | Not specified, except that the initial furnace temperature must be not less than 10°C and no more than 40°C.   | The testing equipment and test sample are to be protected from any condition of wind or weather that might influence the test results (i.e. the ambient temperature at the time of testing must lie within 10-32°C while the velocity of air across the sample must not exceed 1.3 m/s.).  |
| <b>5</b>  | $T = 345 \log_{10}(8t + 1) + 20$ where<br>T = furnace temperature (°C)<br>t = time (minutes) up to 360  | $T_i - T_o = 345 \log_{10}(8t + 1)$ where<br>T <sub>i</sub> = furnace temperature at time t (°C)<br>T <sub>o</sub> = initial furnace temperature (°C)<br>t = time to test (minutes)  | $T = 345 \log_{10}(8t + 1) + 20$ where<br>T = furnace temperature (°C)<br>t = time (minutes) up to 360   | $T_i - T_o = 345 \log_{10}(8t + 1)$ where<br>T <sub>i</sub> = furnace temperature at time t (°C)<br>T <sub>o</sub> = initial furnace temperature (°C)<br>t = time to test (minutes)  | 538°C at 5 minutes<br>843°C at 30 minutes<br>927°C at 60 minutes<br>1010°C at 240 minutes  |
| <b>6</b>  | Bare nickel chromium/nickel aluminium wires to BS 4937: Part 4 or contained within insulated sheath of Ø 1.5mm, hot junctions being insulated from the sheath. The assembly shall have a response time on cooling in air of not greater than 30s. | Thermocouples to DIN 43710 of the jacketed type with outside Ø 3.2mm at >25mm exposed measuring tip. The distance of the tips from the test specimens must be >100mm.  | Type L nickel chromium / nickel aluminium defined in IEC 584-1 contained within insulated sheath of Ø 1mm, hot junctions being insulated from the sheath. Must be replaced after 50 hours exposure.  | Should be type "K" complying with BSEN 60584.1 and shall be calibrated by an accredited laboratory with appropriate NATA registration.   | Specified in ASTM E119. Typical thermocouple assembly may be fabricated by fusion welding the twisted ends of No.18 AWG (0.82mm <sup>2</sup> ) Chromal – Alumel wires, mounting the leads in porcelain insulators and inserting the assembly into a standard weight nominal 13mm iron, steel or Inconel pipe, and sealing the end of the pipe that is inside the furnace. This should protrude into the furnace by no less than 300mm and the time constant lies within the range of 300s to 400s. |
| <b>7</b>  | Type T or K wires complying to BS 4937: Part 4 or 5, with a maximum Ø 0.5mm, brazed to a 12mm Ø 0.2mm thick copper disc. Roving thermocouples are also used.  | Thermocouples to DIN 43710 with wire 0.5mm thick.  | Type L complying to IEC 584-1, 0.5mm Ø attached to a copper disc 12mm Ø 0.2mm thick. Roving thermocouples are also used.   | Should be type "K" in standard tolerance ± 2.2°C or 1.5%, complying with BSEN 60584.1 and shall be calibrated by an accredited laboratory with appropriate NATA registration. The T/C is attached to a copper disc 12mm Ø 0.2mm thick.   | The thermocouple leads required for the through penetration firestop and assembly are to be not larger than No.18 AWG (0.82mm <sup>2</sup> ) and are to be electrically insulated with heat and moisture resistant coverings.  |
| <b>8</b>  | At intervals of not less than 1min from time zero.  | Must conform to VDE/VDI Rule 3511 – technical temperature measurements.  | At intervals of not less than 1min from time zero.   | The furnace temperatures shall be measured at intervals of not less than 1min.   | The furnace temperatures are to be read at intervals of 5min for the first 2 hours and at 10min intervals after that.  |
| <b>9</b>  | The pad should be 30mm <sup>2</sup> , 2 ± 0.5mm thick with a dry density of 900 ± 90 kg/m <sup>3</sup> and thermal conductivity of 0.13 W/(m.K) ± 10% at 100°C.   | Must conform to VDE/VDI Rule 3511 – technical temperature measurements.  | These should be 30 ± 5mm sq. x 2.0 ± 0.5mm thick inorganic pad of density 900-100 kg/m <sup>3</sup> . Annex C has a large section devoted to various fixing methods etc.   | Each disc shall be covered with an oven-dried pad no less than 30mm <sup>2</sup> √(kQc) with <600 at 150°C and thermal resistance between 0.015-0.025 K/W at 150°C.  | a) Organic material that can be bent without breaking<br>b) Length x width of 50mm<br>c) 10mm thick<br>d) Density of 500 kg/m <sup>3</sup><br>e) Thermal conductivity of 0.055 ± 0.003 W/(m.K)   |
| <b>10</b> | At mid-height of vertical systems, the pressure differential is 15Pa, and the same pressure 100mm below horizontal systems.   | Pressure of 10 ± 2Pa at the level of the uppermost penetrant for vertical specimens. For horizontal specimens, pressure of 10 ± 2Pa is measured about 100mm from the soffit.   | For a vertical system with height <1m the pressure differential should be 15Pa. Vertical system >1m in height, the pressure differential should be 20Pa at the top of the specimen. In this case penetrations they should be included where the pressure >10Pa. Horizontal system the pressure differential should be 20Pa at 100mm under the supporting construction.         | Not less than 8Pa at notional soffit height of horizontal element, or at a level with lowest point of the penetration seal of a vertical element. If the overpressure is <8Pa after the first 5min, the results may be ignored.  | Except for the first 10min of the test, the furnace pressure shall be at least 2.5Pa greater than the pressure on the unexposed side at the following locations:<br>Wall – at lowest elevation of the test specimen<br>Floors – at the location of the pressure probes<br>Test sponsor may also specify a unique pressure condition in which case it must be maintained throughout the duration of the test, excluding the first 10min, within 20% of the specification.                           |
| <b>11</b> | a) Cotton pad test<br>b) Gap gauge<br>c) Sustained flaming  | a) Gap gauge<br>b) Cotton pad test<br>c) Sustained flaming<br>d) Smoke emission  | a) Cotton pad test<br>b) Gap gauge<br>c) Sustained flaming   | Failed when:<br>a) gap forms which permits a line of sight from the unexposed face of the specimen through to the furnace, or<br>b) flaming takes place at the unexposed face of the specimen for a period exceeding 10s.  | Shall not permit the passage of flame throughout the fire test, or water through the hose stream test. Mandatory for all ratings in both standards.  |
| <b>12</b> | The insulation of the specimen is judged to have failed if the temperature on the unexposed side and on penetrations reaches 180°C above the initial temperature.   | Surface temperature of penetrating elements, supporting constructions and seals should not exceed 180°C from initial temperature. Mandatory requirement.   | The insulation of the specimen is judged to have failed if the temperature on the unexposed side and on penetrations reaches 180°C above the initial temperature.  | The criteria for failure insulation is clause 2.11.3b, which is if the temperature of any of the thermocouples on the unexposed side reaches 180°C above the initial temperature.  | Shall not permit the passage of flame through the fire test, or water through the hose stream test or allow the temperature to increase by 180°C on the unexposed side. Mandatory for T rating in both standard.   |
| <b>13</b> | No specification.   | Have provision for hose stream test in DIN 4102: Part 2, applicable to column claddings. May be modified for use with penetration seals.   | No specification.  | No specification.  | For both F & T rating, a duplicate specimen is subjected to a fire exposure test for period 0.5 x of the desired rating, but not more than 60min. Immediately after the fire exposure, the specimen shall be subject to the hose stream test. A same test assembly can be used for both tests but must take place within 10min from the completion of the fire test.   |
| <b>14</b> | a) Structural adequacy (loadbearing)<br>b) Integrity<br>c) Insulation   | Given as class S, i.e. S 30 for 30 minutes of fire resistance.   | a) Loadbearing capacity (not applicable for penetration seals)<br>b) Integrity (sustained flaming)<br>c) Gap gauge d) Cotton pad<br>d) Insulation area 1 f) Insulation area 2  | As 1530.4 states results to be expressed in:<br>a) Structural adequacy<br>b) Integrity<br>c) Insulation<br>d) Resistance to incident spread of flame   | Specified in terms of "F" rating which require a hose stream test, and "T" rating which, does not require a hose stream test, measures the insulation. UL have an additional "L" rating for air-leakage.   |
| <b>15</b> | a) Temperature data from all specified critical thermocouple<br>b) A detailed description of all penetrating services<br>c) A detailed description of the test construction   | a) Detail of supporting construction, i.e. wall or floor<br>b) Detail of the seals<br>c) Details of penetrating elements<br>d) Details of supports and brackets<br>e) Dimensions<br>f) Measurements<br>g) Mechanical behaviour and smoke emissions                                     | In addition to requirements of EN 1363-1 the following are necessary:<br>a) For tests on pipes, pipe end configurations (capped or uncapped)<br>b) Cables – the cable dimensions<br>c) Metallic pipes – the pipe dimensions<br>d) Unsupported seals – the maximum dimension, free of services<br>e) Whether or not multiple penetrations have been tested in a single specimen | In addition to the requirements of AS 1530.3, the report should have:<br>a) Temperature data from all specified critical thermocouple<br>b) A detailed description of all penetrating services<br>c) A detailed description of the test construction   | Report must have:<br>a) Description of assembly and materials<br>b) Relative humidities<br>c) Temperature recordings<br>d) The achieved rating<br>e) Location of pressure probes and differential pressure of the test<br>f) Record of all observations<br>g) Correction factor  |
| <b>16</b> | For positions of thermocouples and other items not specified in this standard, laboratories refer to the draft EN standard.   | This standard is geared towards cable penetrations, and are not as complete as the newer standards.  | Comprehensive draft standard expected to be approved and published in 2000.  | Comprehensive and supply standard configurations, as well as details on permissible variations.  | UL also have an addition "L" rating which is to be reported as the largest leakage rate determined from the air leakage test.  |

● 防火產品不斷發展以迎接未來挑戰

# 防範勝于治療

**如**果認為防範勝于治療的觀點已經成爲一個廣爲人所接受的基準確定下來，這同樣是一個富有各種變化和解釋的理念—即使在以教條保守出名的防火領域。被動防火的具體含意於不同的人會有不同的理解，即使在防火這個非常專業化的領域也是如此。防火的含義，價值和重要性在很大程度上是由你的理解，您對它的重視程度所決定的。

## 理解的差別

消防專業人員，很自然地傾向於採用一種全盤兼顧的方式來考慮問題。畢竟，火災會在隨時隨地發生並會給人帶來破壞。因此，消防專業人員希望防火產品和防火系統至少能針對火災發生的隨機性提出相應的解決方案。

另一方面，建築師和工程師們傾向於把防火視爲建築設計、結構或功能完整性的一個附屬部份。很明顯，建築師和工程師們認爲防火很重要，但它只是一個很大的設計計劃中的很少部份。發展商們則更多地考慮經濟效益問題。而合理的防火系統一般來說是需要很大的投資。從法律和倫理道德的角度來考慮，防火是必須的，也應該是強制性的。但在當今市場經濟社會，投資的因素又不得不考慮。

對於立法者和政府部門而言，逐漸增強的防火意識使得他們把被動防火理論視爲長期規範調整不可缺少的重要一環。防火的重要性是隨著觀念的轉變而變化的。對於用戶來說，他們對於防火理念知之甚少，以至於到悲劇發生時才意識到防火的重要性。

## 起因、結果和變化

如果不重視防火，到火災發生時則悔之已晚。有些時候，人們還知導亡羊補牢；在多數情況下，則一錯再錯，這種情況甚至發生在執行具有良好願望的新規範和新的防火系統時。但是，如同歷史總是在發展和變化一樣，人們對於防火的理解也是不斷變化的，不管這個變化是多麼的小，也勝過毫無變化。

## 新產品的出現

儘管對防火重要性的理解需要很長的時間，在防火領域內最近出現了一種富有活力、蓬勃向上的技術預防火災的潮流，它的出現給防火市場帶來了更多更新、更有效的防火產品和系統，無論是在被動和主動防火領域。這種潮流的特點是以新方法看待老問題，積極推進更符合時代需要、能更有效解決防火問題的新型材料和產品。

## 被動防火理論的推動者和領導者

保全公司是這個新潮流的領導者和積極推動者。爲推動新型產品的廣泛應用，保全公司不惜投入大量資金進行研究和開發，並在多年全世界範圍內的市場實踐中積累了豐富的經驗。

雖然一般來說，防火行業還是比較能接受各種符合時代需要的新鮮事物，但是卻常把開發新型防火產品和推動防火理論發展的任務留給非政府機構，例如，保全公司，多年以來，保全公司積極配合政府相關部門對防火的各種規範進行測試各普及，對人民生命的安全和環境的保護做出了巨大的貢獻。

## 杜絕火災？

在任何時候，防火措施的實施是必應的，都不可能過時。事實上，無論人類怎麼努力，都不可能徹底杜絕火災的發生。隨著建築物環境的複雜化和人類需要的多樣化，防火的要求越來越高，也更複雜。對防火重要性的深刻認識和了解將有助於人類找到更有效的防火措施，並將對人類社會的發展做出了不可抹滅的貢獻。被動防火系統的開發不僅對社會有利，更對社會的安全提供了有力的保障，它使得人類生存的環境更美好，更舒適。對防火的需求證明了人類已脫離了最低生存要求的標準。 **PFT**

# 推介獨特的 Promastop® UniCollar 阻火圈

作爲大量研究和開發的結晶，Promastop® UniCollar 是一種獨特及富有最新理念的防火圈。它可以固定壓各種尺寸的PVC管道上，還可以提供最佳的防火效果並且大大減少運輸、儲存和安裝的費用。Promastop® UniCollar 是一種容易拼裝的連續條狀物，因爲它可以很方便地截短和安裝，無須對工人進行特殊培訓。

## 方便的安裝特性

首先拉出箱裝內的條狀物，然後量出管徑的周長，根據管徑的大小進行短截，然後對PVC管道進行表面覆；最後將作好表面覆的PVC管道固定在金屬托架上。Promastop® UniCollar 是一種有效的PVC管道穿牆防火保護。

## 具富優點的防火圈

- 單位定購  
由於 Promastop® UniCollar 對各種管徑的管道都運用，用戶只須定購所需數量，而不必擔心任何反覆定購。
- 低盤點成本  
通用性可達從管徑40毫米。
- 低投資成本  
便於儲存  
可以儲存在室內或室外，對儲存環境無特殊要求。
- 一步到位  
配套的托架和固定件全具備於一個包裝箱內，無須特殊定購。

有關 Promastop® UniCollar 阻火圈的具體技術細節和測驗報告請填好以下的回執郵寄 (BUSINESS REPLY COUPON) 或以電子信件的方式向各地保全辦事處諮詢。 **PFT**

# PROMASEAL® PolyCollar 一種新型，易於安裝的阻火圈



自從 PROMASEAL® PolyCollar 推出以來，這種新型阻火圈的銷售就大大出乎我們的預料。由聚乙烯鍛造而成，內襯膨脹性活性添加劑 PROMASEAL® Grafitex 作爲膨脹內芯，後接一個 SlabGuard 或其它類似的延長段。把 SlabGuard 或其它類似的延長段與 PolyCollar 連接的目的是爲了防止澆注混凝土時混凝土流入阻火圈從而堵塞阻火圈。

它獨特的設計特性使得施工方不用在樓板初凝後必須拔掉孔洞預埋件，既避免了重複勞動又加快了施工的速度。雖然安裝時須組裝，但由於其重量輕，組裝及運輸均很方便。其明亮的藍色使得其易於辨別和儲藏，也可作爲保全公司優良設計的代表，配以相應的配件，可以安裝壓各種管徑，各種類型的塑料管上。

作爲 PolyCollar 的設計和生產者，保全公司在澳大利亞已是多年的主要阻火圈供應商。爲保持市場領先地位，保全公司早在兩年前，就已做出以聚乙烯取代傳統的鋼鐵作爲原料生產預埋式阻火圈。爲實現這個順應時代需要的目標，保全公司做了大量的市場調查和不斷的設計更新。最終，保全公司生產出以 "Cast-in" 阻火圈爲代表的預埋式阻火圈產品。現在，澳大利亞市場上銷售的預埋式阻火圈 60% 來自保全公司。其安的阻火圈，如外露式阻火圈，仍將以傳統的鋼鐵作爲原料。保全澳洲公司生產的預埋式和外露式阻火圈不僅供應澳洲本地市場同時也分別由保全亞太、歐洲公司向亞洲和歐洲地區提供。

有關新型 PROMASEAL® PolyCollar 阻火圈的技術支持和市場信息請填好以下的回執郵寄 (BUSINESS REPLY COUPON) 或以電子信件的方式向各地保全辦事處諮詢。 **PFT**

**CUT AND FAX NOW!**

## BUSINESS REPLY COUPON

Please send me more information on / a copy of:

*Tick here*

- New PROMASEAL® PolyCollar
- New Promastop® UniCollar
- Contractors' Guide to Passive Fire Protection
- BFP 2000 Philippine Technical Report
- Mr Dheri's Report on The Adequacy of Fire Protection

*Others, please specify*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

My Name: \_\_\_\_\_

Position: \_\_\_\_\_

Company: \_\_\_\_\_

Nature of Business \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_ Postcode \_\_\_\_\_

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

● Overview of Products And Systems In New Promat Pocket Book

# Contractors' Guide Assists in Selection of Passive Fire Protection

A new booklet, titled the "Contractors' Guide To Passive Fire Protection", outlines all the products available in the Promat Passive Fire Protection range of products and systems.

Published recently by Promat Fyreguard Pty. Ltd., primarily for use in the Australian and New Zealand markets, the new 52 page booklet provides contractors with a useful source of basic, relevant information on Promat products and systems.

The listed information includes product descriptions and characteristics, technical details and even advice on understanding fire rating requirements.

Clearly and attractively illustrated, the Contractors' Guide To Passive Fire Protection is available to all contractors interested in solving passive fire protection problems on site.

For enquiries, please refer to the Business Reply Coupon (page 7) or email your nearest Promat office. **PFT**



FIRE SCIENCES

● India Chief Fire Officers' Report Establishes Overview

# Are Passive Fire Protection Measures Adequate?



A recent report from India questions the adequacy of fire protection measures and, in so doing, reviews the complex situation facing the developers of today's built environment, particularly in the major urban centres of the subcontinent.

Written by Mr S.K. Dheri, Chief Fire Officer of the Delhi Fire Service, the article provides a quick overview of some of the problems and solutions that fire safety authorities have to cope with in today's design, construction and occupancy of high-rise buildings.

Mr. Dheri believes that fire safety in buildings has become more technical than ever. As such it needs considerable technical, professional and legislative support. He also feels that the developed world should be more responsive in providing related expertise to the developing world in the overall interest of mankind.

According to Mr. Dheri, a career fire officer with much experience, the range of inter-related issues involved is so complex that a wide spectrum of subjects has to be first adequately

addressed. These include general architectural aspects, interior layouts, distribution of open spaces, performance of structure specifically with regard to occupancy and performance of non-structural elements.

Other subjects which should be included in any review also cover behaviour of materials under fire conditions, passive and active fire protection measures, as well as the behaviour of occupants.

Passive Fire Protection measures come in for special mention and Promat is cited as a good example of a company "doing excellent work" in the field of material selection and testing.

Other categories in the Mr. Dheri's article review compartmentation, smoke management and active sprinklers to supplement passive protection.

For a photocopy of Mr. Dheri's interesting full report, please refer to the Business Reply Coupon (page 7). **PFT**

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