

# Passive fire protection in the UK



*Sales of fire resistant glazing, an important sector within the passive fire protection industry, have undergone considerable growth in the UK in the last five years, according to a market report. Compiled by Market & Business Development, the survey reviews performances in the UK market for passive fire protection materials, including glass, between 1993 and 1998 and provides forecasts for the next four years. Extracts of the report, together with some recent applications of fire protection glazing in the UK, are revealed here.*

**B**etween 1993 and 1998, the period surveyed, the passive fire protection materials sector as a whole in the UK demonstrated a period of sustained nominal growth, representing a slow recovery in the construction market. In 1998, however, the rate of growth slowed to 3 per cent due to high interest rates and fears of a recession in UK manufacturing. Fierce price competition in the passive fire protection materials industry also had a negative effect on development and resulted in a greater number of lower cost materials, often with lower levels of fire resistance.

Although the largest sub-sector in the passive fire protection materials industry is architectural ironmongery, followed by fire doors, fire resisting glass is forecast to be one of the strongest sectors of growth in the UK passive fire protection materials market in the next four years.

### MARKET PERFORMANCE

#### *Structural passive fire protection*

Structural passive fire protection has been one of the strongest growth sectors of the market throughout the review period. Indeed between 1994 and 1998 the value of sales in the sector is estimated to have increased by as much as 39 per cent in nominal terms to an estimated UK£ 70.6 million at MSP in 1998. Particularly strong growth was recorded in 1996 and 1997. The sector includes a wide range of products, including glass, and demand is driven almost exclusively by new building activity.

During the review period, the value of sales of fire resisting glass increased by 18 per cent in nominal

### TOP MARKS FOR TRINITY COLLEGE GLAZING

The 63 metre-long atrium roof of Trinity College in Dublin, Republic of Ireland (see photo on page 146) is an example of fire resisting glazing that also makes optimal use of daylight. The glass used is from *Vetrotech Saint-Gobain's Pyroswiss* glazing range, available in integrity specifications for 30, 60 and 90 minute fire performance times. This clear fire resisting safety glass was part of the architects' design to

maximize natural sunlight inside laboratory and office areas in the College's UK£ 16 million extension.

A series of 240 timber framed windows glazed with the 30-minute integrity Pyroswiss glass "borrows" daylight from the atrium. The window sections measure up to 1,200 x 1,200 mm to run from mid-height within the bespoke natural oak veneered panel

partitioning system along four floor levels. To achieve a class-O fire rating, the extension partition system's oak veneer panel and strip trimming was treated with a special fire resistant varnish. In addition to its fire protection properties, the monolithic heat-modified float glass-based Pyroswiss range meets the Class-A general safety specification requirements of BS6262.

terms to a value of UK£ 33.4 million at MSP. The market increased strongly in 1997, rising by some 8 per cent, ahead of slower growth in 1998. The market has been driven by the growth in the insulating glass sector which is a relatively new market sector and is still in a growth phase of the market's development.

### SAFE AND SOUND BEHIND FIRE RESISTING GLAZING

Effective sound insulation has been combined with fire protection

properties in the *CF60* brand of *Vetrotech Saint-Gobain's Contraflam* fire resistant glass. At the Berthon boatyard in Hampshire, on the south coast of England, CF60 was installed in the form of double-glazing units with a 46 dB acoustic rating to protect office accommodation from a noisy manufacturing space.



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## TACKLING FIRE SAFETY AT THE HOME OF ENGLISH RUGBY

An example of fire resistant partitioning is the use of over 100 square metres of Vetrotech fire safety glass at the new hospitality boxes at Twickenham stadium, near London, home of English rugby union. With floor to ceiling glazing, the luxury hospitality suites are positioned 100 feet high in the west stand to provide up to sixteen guests in each with spectacular views of games. Vetrotech's Contraflam CF 30 glass prevents the passage of fire from the hospitality boxes to an adjacent

glass-sided corridor, which is the main fire escape. The 1.5 x 2 metre sealed units comprise a 22 mm-thick inner pane of the Contraflam CF30 glass and a 6mm-thick outer pane of clear toughened float glass to provide 30 minute integrity and full insulation fire protection.

The Contraflam CF30 panes contain a transparent colourless gel between two panes of toughened glass. This gel absorbs a fire's energy, turning opaque and acting as a protective heat shield to provide spectators with the vital escape time needed should there be an emergency.



### *Partitions, screens and linings*

Demand for fire resisting partitions, screens and linings was reported to have demonstrated nominal year-on-year growth, increasing by a total of 15 per cent over the five year period. Annual growth was relatively modest during this period although the rate of growth in 1998 was above the industry average at 4 per cent.

During the early 1990s, the sector suffered from some adverse publicity following the failure of insulated partitions in a number of high profile fires. The UK Loss Prevention Council, however,

subsequently issued guidelines into the use of materials in construction, including lower use of polystyrene and polyurethane and greater use of mineral wool. In addition, the UK Partitioning and Interiors Association has worked with Warrington Fire Research to develop a FIRAS accredited list of installers for fire resistant partitioning.

### *Fire doors*

The market for fire doors is the second largest sector of the passive fire resistant materials market, accounting for around 25 per cent of the sales in the sector. The sector is driven by both new building output and legislative requirements, as well as the demands placed on building owners by insurance companies. Indeed the demands of the insurance sector are often more onerous than the building regulations. The market remained in recession in 1994, with sales falling by a nominal one per cent. However, following marginal sales growth in 1995, sales in the

sector performed strongly in 1996 and 1997, increasing to a value of UK£ 152.9 million at MSP, some 14 per cent higher than the 1994 level. Furthermore, the performance of the sector in 1998 is reported to have been somewhat stronger than the rest of the market, with sales rising by an estimated 4 per cent in nominal terms to UK£ 159 million, reflecting an overall growth of almost 19 per cent during the review period. This buoyancy reflects the influence of insurers on the sector, who are demanding higher standards of protection to prevent claims for losses.

## MARKET FORECAST

Growth in sales of passive fire protection materials in the UK is expected to continue over the next four years, although the annual rate of market growth is expected to remain modest in real terms. More difficult construction market conditions are likely to be offset by increasingly stringent demand for the levels of passive fire protection in the new building industry due to both regulatory pressure, principally through the building regulations, and greater pressure from insurers to reduce the potential for large scale damage in the event of a fire. This is likely to encourage greater premium discounts for building owners who can demonstrate that a high level of passive fire protection was used in the construction of the building.

### *Structural passive fire protection*

In the next four years, demand for structural passive fire protection is likely to be limited by trends towards lower cost solutions as a result of pressure on prices as the market becomes more competitive. The price differential between products is likely to be forced down as manufacturers seek to maintain sales volumes. However, sustained real term growth is anticipated, with sales increasing by 9 per cent over the next four years.

The declining share of wired glass in favour of clear glass for aesthetic reasons and the growing popularity of insulated glass are expected to be major factors in sustaining the development of the fire resisting glass market, which is forecast to increase by 12 per cent in real terms between 1998 and 2003. As such, this is expected to be one of the strongest sectors of growth within the passive fire resisting materials market during the forecast period.

## BRITISH AIRWAYS CHOOSES FIRE-SAFE GLAZING SOLUTION

A similar quantity of Contraflam glazing (this time the CF60 brand) to that used in the Twickenham hospitality boxes has been utilized to create high-clarity fire-safe partitioning for British Airways'

corporate headquarters at Heathrow airport in London. CF60 functions in a similar way to CF30 but has a 60-minute safety rating for integrity and full insulation. It comprises two sheets of toughened

glass bonded by a transparent heat absorbing gel which gives clear vision. The glazing provides a clear partition between open-plan offices, a café and a dramatic atrium 'street' within the building.



### *Partitions, screens and linings*

The level of price competition in the fire resisting partitions, screens and linings sector is also expected to remain a feature of the market during the forecast period, reflecting the mature nature of the market and the pressure on material prices from the continued trend towards design and building. As such, the cumulative market growth between 1998 and 2003 is forecast to be restricted to 10 per cent.

### *Fire doors*

The market for fire doors is also expected to maintain real term growth throughout the forecast period with particularly strong develop-

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## SMOKESCREEN PUTS FIRE SAFETY TOP AT UK'S LARGEST SUPERMARKET

One company that has demonstrated a high level of passive fire protection in the construction of a building is leading UK retailer, Tesco, which recently opened Britain's largest purpose-built retail store.

In this construction, Vetrotech Saint-Gobain's Pyroswiss fire-related glass provides a space enhancing smoke retention safety system. Suspended glazing at the flagship store divides the 8,775 square metre roofspace into four smoke safety retention areas, which are 8 metres above the 30-plus shopping aisles. The suspended smoke zoning glass is designed to work with the automatically controlled roof ventilators, which safely expel fumes in the event of a fire.

As well as having fire protection properties as an integrity-only glass, the Pyroswiss monolithic heat-modified float glass also meets the Class A general safety requirements of Britain's BS 6206 safety regulation.

All 210 panes of the 6-mm thick glass were

manufactured by Vetrotech Saint-Gobain in a mix of different dimensions dictated by the angle of pitch that the roof trusses follow. The panes of glass, which measure up to 2 metres in length, hang from three bolts directly to the steel roof trussing. The glass was specially tested for its stability at temperatures of 600°C in order to

determine the 10 mm expansion gaps required between each pane. To retain the clean visual lines of the glazing, micro-aluminium cap fixings provide lateral stability at the expansion gap edges. Glazing in the same Pyroswiss specification glass was used to create a vital smoke safety infill for the round roof truss cut-outs.



ment anticipated in 1999 and 2003. In the intervening period, the market is expected to expand by just one per cent annually in real terms as price competition hinders the rate

of sales growth. Nevertheless, between 1998 and 2003 the market is forecast to expand by 12 per cent in real terms.

### GENERAL OUTLOOK

Despite moderate concentration, the industry will continue to be highly fragmented. The fact that the small manufacturers operating in the market have survived the deep recession of the early 1990s, when their vulnerability in terms of dependence on a few customers was at its greatest, suggests that many of these companies are relatively well placed

as the economy has strengthened. However, there remain targets for acquisition activity, and this will be exacerbated by the likely onset of more difficult economic conditions in the short term. Many manufacturers are likely to be attracted by the higher profit margins that have been available for passive fire resisting materials, encouraging diversification from standard products to added value items. However, industry standards are expected to become increasingly rigid, necessitating extensive product testing and research which will provide higher barriers to market entry.

Sources: Market & Business Development.

Vetrotech Saint-Gobain UK Ltd.