



## FIREMAC FM FIRE DUCTS

FIRE RESISTANT VENTILATION, KITCHEN EXTRACT, SMOKE EXTRACT, AND PRESSURISATION DUCTWORK





## COMPANY PROFILE

Firemac was established in 1989 and has grown to become a major provider of passive fire protection products, both in the UK and internationally.

Passive fire protection (PFP) is a key part of the structural integrity and fire safety in a building. Passive fire protection contains or slows the spread of a fire through the use of fire resistant ductwork, walls, floors, and doors.

Firemac has been at the forefront in product design for the PFP sector for over 25 years, and has extensive experience advising a broad range of clients on solution selection through to designing and installing ductwork protection systems, fire walls and ceilings, and fire resistant services enclosures.

Firemac's market leading product range for ductwork, Firemac FM Fire Duct systems, has a proven track record in builds both in the UK, and increasingly in international markets.

More recently, Firemac has introduced FM Blue – an impact-resisting, steel-faced non combustible board that can be used to form fire resisting walls, ceilings, ducts and enclosures.

As our customers would expect of a company working in safety critical systems Firemac is ISO 9001 registered and Third Party Accredited.



Jabal Omar in KSA is a mix of commercial and residential projects located next to the Al haram mosque in Makkah. The project will be spread over an area of 230,000 sqm with around 2M sqm of construction covering 38 residential towers, hotels, malls and a mosque of 14,000 sqm that can hold up to 150,000 people. 25,000 sqm of Firemac FM Fire Ducts are currently being installed in the development.

The Abraj Quartier is the landmark component of a major mixed-use development in Doha known as "The Pearl".

The two beacon-like office towers flank the main access road and serve as the gateway to the overall Pearl development. The Abraj Quartier will include 2,200 residential units and a total of more than 350,000 m<sup>2</sup> of built area.

Firemac FM Fire Ducts have been installed throughout the main towers including an eight level parking podium and forty three levels of high rise office space.



## FIREMAC FM FIRE DUCT SYSTEMS

Building Regulations require that new buildings must be divided into fire compartments and means of escape in order that the spread of fire in the building is contained. There are obvious areas of weakness which include doors, building services and ventilation ductwork passing from one compartment to another. In particular the standard ventilation ductwork system offers little or no protection against fire spread, and to overcome this fire resistant ductwork is used.

Firemac FM Fire Duct systems gives ductworkers complete control of both fabrication and installation of fire resistant ducts where required in commercial developments. This means that the full system is manufactured under strict factory controls, and to Firemac's required technical standards. All manufacturers of Firemac FM Duct systems are re-trained and audited annually by qualified ISO Internal Auditors.

FM Fire Duct systems have been designed around the needs of ductworkers, allowing them to manufacture fire resistant ductwork in their own factories without the need for third party suppliers.

Using FM Fire Duct systems puts all elements of a contract in the hands of the ductworker, and allows entry into a specialist market segment, without the need to develop highly expensive in house systems.

Full training in the fabrication of fire resistant ductwork is given, and as part of Firemac's service commitment we work alongside our customers as the ductworker's technical support department. Firemac can deal directly with specifiers and consultants on any queries relating to fire protection, whether at the tender, fabrication, install or sign off stage.

Firemac FM Fire Ducts are suitable for ventilation, smoke extract, kitchen extract and pressurisation ductwork systems, offering up to 240min fire resistance when tested to BS476: Part 24: 1987 (ISO6944: 1985). Firemac FM Fire Ducts have passed the required flammability, smoke and toxicity tests required for use in underground metro projects.

FM Fire Duct systems use a glass fibre cloth, bonded directly on to steel ductwork to give fire resistance of up to four hours.

### Doha Metro

Firemac FM Fire Ducts are being installed in the Red Line of the Doha Metro. To gain approval the system had to demonstrate fire performance to BS476: Part 24: 1987, and successfully pass impact, flame, smoke and toxicity tests. These are the requirements of a number of transit systems around the world, including the London Underground.





## PRODUCT DESCRIPTION

Firemac FM Fire Duct systems use a specially woven fire protection glass fibre fabric, Firemac FM Fabric, which is bonded and mechanically fixed to the outer face of galvanised or stainless steel ductwork, to achieve the required fire performance. The fabric is less than 0.5mm thick and adds virtually nothing to the overall weight of the uninsulated steel duct sections. The insulated Firemac FM Fire Duct systems use a layer of rock mineral wool.

The fabric is silver grey in appearance, unobtrusive and gives a neat, aesthetically pleasing finish. During the finishing process the fabric is overprinted with FIRE RESISTANT to ensure it remains independent of standard ventilation ductwork and service trays.

Firemac FM Fire Ducts can be constructed as rectangular, oval, circular or spiral ductwork, made in the normal manner and broadly following the requirements of DW144 / SMACNA. There is usually no requirement to upgrade the gauge of steel used to achieve the required fire resistance. Once the steel duct section has been formed, the fabric is applied quickly and easily, and bonded to the duct using a contact adhesive. The fabric is mechanically fixed using mild steel rivets or screws along a single longitudinal edge. Flanges are then tapped on and fixed mechanically to the duct - no curing time is required and the duct is then ready to transfer to site for installation.

## TESTING AND THIRD PARTY CERTIFICATION

With standard ventilation ductwork offering limited protection against fire spread it is an easy way for fire and smoke to spread rapidly through a building, penetrating fire compartment walls and floors and cutting off means of escape. Therefore it is vital that any safety critical product is rigorously tested.

Firemac FM Fire Duct systems have been tested and assessed to BS476: Part 24: 1987 and demonstrated fire resistance of up to four hours. A full appraisal of Firemac FM Fire Duct systems, which includes a summary of the supporting test evidence, has been issued by the Building Research Establishment (BRE) and is available on request.

Independent inspection of Firemac FM Fire Duct systems has been carried out by IFC Certification Ltd, a UKAS accredited and internationally recognised provider of Third Party Certification, with offices in the UK and the Middle East



## FIREMAC SYSTEMS: YOUR PARTNER FOR FIRE RESISTANT DUCTWORK

For companies who have not installed fire rated ductwork before, or have limited experience, initial entry into this market can seem daunting. As it is a safety critical area of the industry, the technical knowledge required can be off putting.

Firemac acts as the ductworker's in-house technical department, and will answer any questions the ductworker or consultant has regarding fire rated ductwork, and the performance of Firemac's range of systems. Our technical team includes some of the UK's leading experts on passive fire protection and Firemac's systems have been designed to be a straightforward addition to the range of services offered by professional ductwork manufacturers.

### BENEFITS FOR DUCTWORKERS

The process of becoming a Firemac installer is simple and involves no set up costs, or licencing agreement.

Using Firemac Fire Duct systems allows a ductworker to bring all aspects of a project under their control without the need to outsource to third party contractors.

The benefits of using Firemac's range of fire resistant ductwork systems include:

- Proven in UK and Middle East in a number of high profile builds
- The fabric is applied by ductworkers themselves, quickly and easily, with minimum wastage, and at the point of fabrication, giving complete control of the whole contract, without the need to resort to any third party suppliers for fire resistant duct work
- There is no loss of time on site, continuity is guaranteed and any plan changes are easily accomplished
- Cuts out the need to develop costly in-house systems
- Allows the ductworker to build a reputation for fire resistant ductwork
- Full training given at customer's premises
- Complete technical back up and site sign off
- The fabric itself is extremely strong, while its flexibility means it is easy to apply, usually by one worker
- No curing time is required, meaning that fire resistant ductwork can be built, delivered and installed within hours
- There is usually no need to upgrade the duct to achieve the required fire resistance



## TRAINING AND ONGOING SUPPORT

All of Firemac's customers receive full training prior to the fabrication or installation of fire resistant ductwork. The training package is delivered at the customer's factory and is a combination of technical presentations, training videos and hands on manufacture of Firemac FM Fire Ducts.

At the completion of the training each company is certificated as an Accredited Installer. An annual training refresher is also given and any changes to the Technical Manual are communicated directly to the customer.

Each customer is listed on [www.firemacgulf.com](http://www.firemacgulf.com) and can access their own secure area of the website where the training packages are hosted. Completed projects and photographs can be listed within the customer's details on the website, allowing them to build a portfolio of successful projects and a reputation for the manufacture and installation of fire resistant ductwork.

Firemac recognises that specifiers and building control officers can interpret the requirements around the installation of fire resistant ductwork in different ways. We will work directly with specifiers and other key influencers to ensure any technical submission meets their requirements, and become our customer's in house technical department.

Firemac inspectors will visit the installation of the ductwork on site to ensure it is fitted to the requirements of the Technical Manual, and issue a Certificate of Conformity in the name of the ductworker.



### FIREMAC TRAINING PACKAGE

The training is a mixture of presentations, video and hands on fabrication designed to give our customers an introduction into the purpose and requirements of fire resistant ductwork.

Each worker will be taken through the fabrication of Firemac FM Fire Ducts including the initial forming of the duct, application of fabric, fitting of flanges, mechanical fixings, transitions and bends, patches, access panels and installation.

On completion of the training course each worker will be issued a photographic ID badge showing his level of training and will be required to attend refresher courses on a regular basis.

The Burj Al Arab hotel in Dubai is an iconic building, and is regularly voted the world's most luxurious hotel.

Firemac FM Fire Ducts has been used in restaurant refurbishment at the hotel, providing kitchen extract with a fire resistance period of 2 hours.

In addition Firemac FM Fire Ducts have been installed in many projects in the UAE including hotels, restaurants, schools, malls, substations and towers, and across a wide range of applications including basement car parks, kitchen extract, staircase pressurisation / escape routes and smoke extract.



## BENEFITS FOR SPECIFIERS

The fabric itself is extremely strong, while its flexibility means it is easy to apply, usually by one worker. It is applied after the duct has been manufactured by a combination of adhesive and mechanical fixings - no curing time is required, meaning that fire resistant ductwork can be built, delivered and installed within hours without the need to use any third party contractors. This ensures any plan amendments can be easily and quickly accommodated, without any loss of time on site. There is usually no need to upgrade the duct to achieve the required fire rating.

- Proven track record in major builds
- Industry leading technical expertise in passive fire protection
- Tested to British Standards
- Fire resistance from 1-4 hours
- No need to upgrade ductwork or hangers reducing time, wastage and cost
- Delivered on site, fire rated and ready to install
- No requirements for second trades
- Firemac is an ISO 9001 accredited company
- Firemac FM Fire Duct systems tested and manufactured under IFC Third Party Certification

## APPLICATIONS

Suitable for a wide range of environments, Firemac FM Fire Ducts have been successfully installed in factories, commercial kitchens, schools, hospitals, shopping centres, metro systems, and other projects for the purposes of safeguarding life and property from fire.

Firemac FM Fire Ducts have passed the required smoke and toxicity tests required for use in underground metro projects.

Firemac fire resisting ductwork can be used in any area of a building to protect life and property and to aid the emergency services in the event of a fire. Typical areas include:

- Ventilation Ductwork
- Smoke Extract Ductwork Systems
- Non Domestic Kitchen Extract Ductwork
- Basement and Enclosed Car Park Duct and Smoke Extract Systems
- Escape Route Ducts
- Pressurisation Ductwork Systems
- Dual Ventilation / Smoke Extract Systems
- Fume Cupboard Extract Systems
- High Risk Areas

## UK TECHNOLOGY FOR INTERNATIONAL PROJECTS

Firemac FM Fire Ducts are safety critical systems and it is imperative that the fabrication of fire resistant ductwork exactly mirrors the design and build of tested systems to give confidence that in the event of a fire the ductwork will prevent fire spread from one compartment to another. Until recently test and certification bodies have permitted the use of a variety of fire rated sealants for use in duct systems. However they are now focussing on the importance of such products, and the desirability that the same sealants and accessories used in testing are also used in commercial fabrication and installation.

All Firemac accessories have been fully fire tested, and are prescribed for the fabrication and installation of Firemac FM Fire Ducts.

### FIREMAC FM INTUMESCENT ACRYLIC AND SILICONE SEALANTS

- High quality sealants
- Manufactured in the UK
- Tested in Firemac FM Fire Ducts to requirements of BS476: Part 24: 1987 for up to four hours fire resistance
- Prescribed sealant for Firemac FM Fire Duct Third Party Certification
- Can be used in normal ventilation ductwork

### FIREMAC FM BUTYL GASKET TAPE

Firemac FM Butyl Gasket Tape is a preformed high performance polyisobutylene (PIB) based sealing tape available in single strand or multi-lane rolls. This product has a multitude of applications where joints need to be formed to seal against air and water ingress, and is preferable to other methods of sealing flanges on ducting due to its ease of use and solvent free formulation. The product is cost effective, non toxic and requires no tools to apply.



### FIREMAC FM ACCESS PANELS

- Purchased direct from Firemac with quick turnaround
- Supplied with safety retaining chain as standard
- Manufactured to size required and in accordance with latest version of the Firemac Technical Manual
- Manufactured to fire resistance period specified
- Can be manufactured to any size required
- Speeds up fabrication of duct - access panels fitted directly to duct



Firemac FM Fire Ducts can be fabricated to 4 hours fire resistance in straight, spiral or circular forms, giving complete flexibility of design and installation



Hamad Medical City in Doha, Qatar, is a world class medical facility. The project is spread over 500,000 square metres and comprises three hospitals with a total bed capacity of 1,100. It is the second largest healthcare development in the Middle East.

Now completed, over 35,000 square metres of Firemac FM Fire Ducts form an integral part of the building's fire protection.

Firemac FM Fire Ducts have been installed in a wide range of shops within both The Dubai Mall in the UAE, and in Tawar Mall, Qatar. This has included basement car park systems, kitchen and smoke extract ductwork.



## PROJECTS

Firemac has partnerships in a number of international markets in the Middle East, Africa and Southern Asia, including Bahrain, UAE, Qatar, Oman, Saudi Arabia, Kenya, Malaysia, Indonesia and India. In each market Firemac's range of products complies with local Civil Defence requirements. As in the UK, full training is given to Firemac's international partners alongside ongoing technical and sales support.

Key projects in the GCC include Jabal Omar and Centro Hotels in KSA, Tawar Mall, Hamad Medical City and AQ Towers in Qatar, The Wave, City Mall and Muscat International Airport in Oman, Spring Dale School, Symphony Tower, Dubai Sports City, Burj Al Arab, Dubai Mall and numerous commercial and residential towers in the UAE.

Firemac FM Fire Ducts are also being installed in Delhi Land Foundation developments in India, and in East Africa the system is fitted in the prestigious Two Rivers Hotel and Brittam Tower in Nairobi, Kenya.

The new terminal at Muscat International Airport will have the capacity to handle 12 million passengers annually. Further expansions will ultimately boost the airport's capacity to 48 million passengers when the demand is required.

Over 25,000 square metres of Firemac FM Fire Ducts will be used in the development of the in flight catering facility.





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