

MME

MMEngineering



INNOVATIVE ENGINEERING
BLAST PROTECTION | FLOOD DEFENCE

www.mmengineering.co.uk

Our Story

Driven by a vision and a passion to produce the best defence products in the market, MMEngineering (MME) was formed.

Having each worked in the defence sector for over a decade, co-founders Martin McDermid and James Morton saw the opportunity to develop a more innovative business model, one that would offer customers better engineered defence solutions by combining their industry expertise with the latest technological advances in materials and design.

When it comes to defence there is no room for risk or error. Each product we design is backed by third party design calculations that give 100% confidence to us and our customers that our products will work when called upon.

Why Work With Us?

- Industry Leaders
- Export Worldwide
- Engineering designers using advanced 3D software
- In-house fabrication and manufacturing
- In-house paint facility
- On-site testing



"We engaged MMEngineering to carry out a small flood protection door project for two critical fire exits in our Midlands facility. From initial enquiry stage through detail specification and final design, we found MMEngineering a real pleasure to do business with..."

Our Products

Blast Doors

- Fully operable post-blast
- Unique locking system certificated to fire/blast/security standards
- Bespoke hinges allowing the heaviest doors to be operated by one person
- Pull test on door prior to installation to suit our customers' requirements
- Minimum of 50-year design life



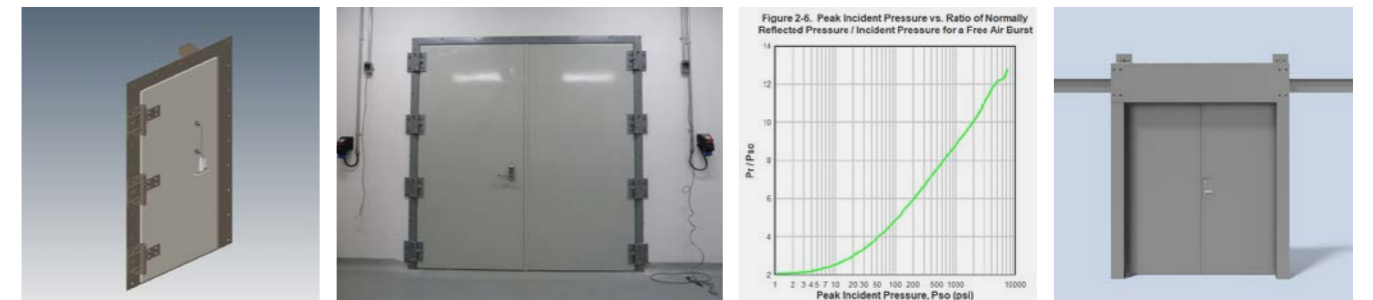
Our blast door designs have been independently tested in accordance with the procedure under ISO/FDIS 16933 to verify their ability to withstand a blast loading. When a customer specification is received we have the calculations independently verified to ensure the highest levels of protection and performance. These can be designed as a standard hinges blast door, sliding and both applications automated.

Design Methodology

The design of a blast door set is initiated by the static seated and unseated pressure as defined by the client. The door leaf designed to take the seated blast pressure and remain in the elastic range. The door hinges and shoot bolts and their component parts are designed to take the unseated blast pressure.

The dynamic peak blast pressure, impulse and duration is also defined by the client as the required response criteria e.g. Class I (elastic) or Classes II, III or IV (plastic).

The door leaf designed for the dynamic blast load using a single degree of freedom (SDOF) numerical analysis such that the response (leaf deformation) is within the client defined limits. The door hinges, shoot bolts and their connections designed for the rebound forces determined by the SDOF analysis.



Blast Windows & Vision Panels For Blast Doors

- Impact & blast resistant
- Designed as either fixed panel or side/top hinged
- Passive solution
- Bespoke design with engineering calculations
- 50-year design life



Where vision panels for blast doors or blast windows are required, they shall be designed using a Single Degree of Freedom analysis or the procedure outlined in ASTM E1300. Where a single degree of freedom method is used this shall include both the response of the glass pre-crack and the response of the pvb laminate post crack in accordance with Blast Effects on Buildings 2nd Edition. Alternative methods may be submitted to TCO for acceptance.

Design of anchorage of the window frame to the structure shall be designed to remain elastic based on twice the dynamic reaction from the frame as a static load. The frame may also be designed so that the window glazing will fail prior to failure of the frame. The anchorage of frame to structure may be designed to develop the capacity of the window frame. The supporting structural elements may be designed by dynamic analysis methods.

Flood/Bund Gates

- Single/double/sliding/bi-folding gates
- All gates extensively tested on-site
- Automated floodgates in accordance with BS EN 12453:2001
- Vehicle & pedestrian user friendly
- Operable by one person
- On-site testing readily available
- 50-year minimum design life



Our flood gates are of premium quality and have undergone extensive type and on-site testing. Quite simply, MME make the best flood gates on the market.

We make our flood gate components and structures at our factory and each gate is custom-designed. Our philosophy is to understand each flood scheme's specific requirements, using our years of experience in the flood defence sector, to provide products of the highest quality tailored to the needs of our customers.

The MME oil bund and containment gates follow most of the same design principles as our flood gates, the only differences being the type of specialist seal required to withstand the chemical properties of the liquid being contained and the extra dynamic forces from a catastrophic tank failure.

Utility Flood Protection

Flood Doors

- Passive solution
- Tested by Lloyds Register
- Unique locking mechanism
- Operates exactly like a standard door
- 50-year design life

At MMEngineering we understand the ever increasing need to protect entry points to critical assets from flooding. To provide passive flood defence solutions to industrial and utility buildings at risk of flooding, we have developed a range of fully-integrated flood doors. Our flood doors have the design capability to protect your entrance from a full head of water. Depending on the strength of the surrounding civil works, we can defend your asset up to a height of 4.0 metres.

All our product designs follow best-practice engineering principles and are covered by a full set of design calculations. These are signed off by an independent structural engineer. This gives our clients full confidence that our products are fit for their flood defence purpose.



We only source the highest quality materials from UK manufacturers. This enables us to build strong supplier relationships and provide our customers with competitive rate products with remarkable quality. A heavy-duty flood door leaf incorporates a closed cell EPDM seal. Our engineers modify the Surelock-McGill security locking shoot system, upgrading it to withstand greater design loads imposed by a head of water.

Duct Sealing

- Retrofitted with ease while providing no disturbance to cables
- Gas & blast resistant
- Passive solution
- Allowing for movement, vibration or shock that the cables would be subjected during their lifespan



The existing cable entries and ducts around and beneath a building present a clear risk of water ingress during a flood. This is a particular issue for buildings housing large and high voltage electrical equipment, such as a substation switch room, which often will have tens if not hundreds of cables fed through below ground level and terminating inside the building.

Wall Protection

- Fast curing & easy to apply
- Can cure in wet conditions
- Self-levelling once applied
- No maintenance required
- 25-year design life



A one component liquid waterproofing composition, which after polymerisation produces an elastomeric, cold applied polyurethane membrane. The membrane cures in a continuous and elastic form, as a totally adhered layer.

This waterproofing layer guarantees total water-tightness and withstands building movements. Its fast-curing rate allows its use as a base coat, reinforcing layer or topcoat, especially in low temperature applications.

Elastic and seamless coating, weather resistant and excellent bonding. Non water emulsifiable. Permanent water contact is allowed. No reinforcement usually required except at critical points or identified cracks and joints.

Flood Windows /Glazing

- Impact resistant
- Bespoke design to suit building
- Accepted on grade listing buildings
- Fixed panel or hinged
- 50-year design life



A flood window design can include a standard side or top opening light closed with an MMEEngineering modified strong cockspur latch and a stainless steel casement stay for security closing, the opening light when closed and locked forms a fully watertight seal. Our flood defence windows are glazed with laminated safety glass panels assembled into double glazed K glass sealed units to comply with current building regulations.

Flood Glazed Walls

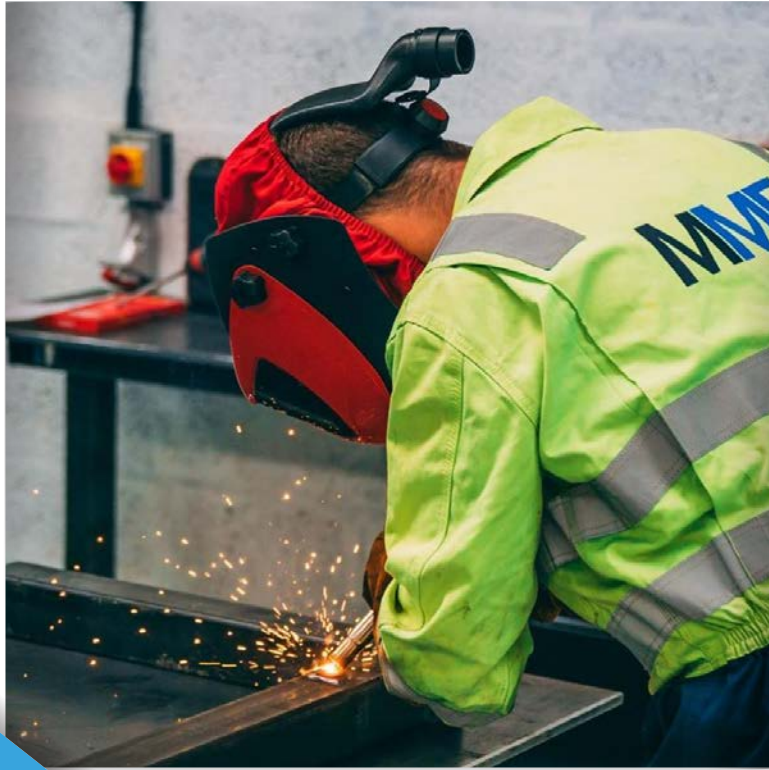
- Will meet strict aesthetic requirements
- Impact resistant
- Self-cleaning glass available
- 50-year design life



Visual impacts of tidal and river defence walls are a sensitive issue, as they partially block the impressive sea or river views. Incorporating flood defence glazing resolves objections to schemes raised by local residents, whilst still achieving the required wall height and protection. Flood defence glass walls prove a popular solution with the local communities, helping to minimise the visual impact of schemes.

Each of our flood glass wall panels are designed to withstand Point Loads of 10kN over an area of 150mm², in addition to the maximum hydrostatic loading that may occur due to temporary rises in rising water levels. They can also be bespoke designed to meet any project specification.

DESIGN TO DELIVER



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