



Introduction

Flooding is a natural event. It occurs when there is heavy rainfall that fills rivers and streams above their normal capacity, or if there are very high river or coastal tides that cause levels to rise or surge. The excess water that gathers cannot be restrained by normal boundaries and follows the path of least resistance.

This means areas that are low lying and close to the source of a flood will be the most vulnerable. Floods can also occur when rainwater collects on the ground and cannot find a source to drain into. A typical example is surface water run-off (for example, if you are located at the bottom of a hill or slope of ground). Localised flooding mainly happens when the ground cannot absorb any more water in a particular area, or if sewers and underground drains become blocked or cannot cope with the excess water trying to drain into them.

Doors & Metal Structures Ltd is a forward thinking Flood gate manufacturer with a combined management experience of over 60 years within the industry. We can offer a standard or bespoke flood gate design to suit any of our client's requirements.

Generally to protect against flooding a flood defence wall is constructed around the area but where access is required for either pedestrians or vehicles a flood gate cast into the structural wall is an ideal solution. The Flood Defence gate can then be closed and secured to ensure a continuous unbroken wall protects against the rising flood water.

We have recently moved into our new offices and 25,000sq ft workshop which has been fitted out with CNC equipment to give us greater efficiencies and accuracy in our manufacturing processes, this allows us to be more competitive and therefore offer further discounts.

We are also pleased to announce that we believe we are to be the first steel floodgate manufacturer to have **BS EN ISO 9001:2008** accreditation.

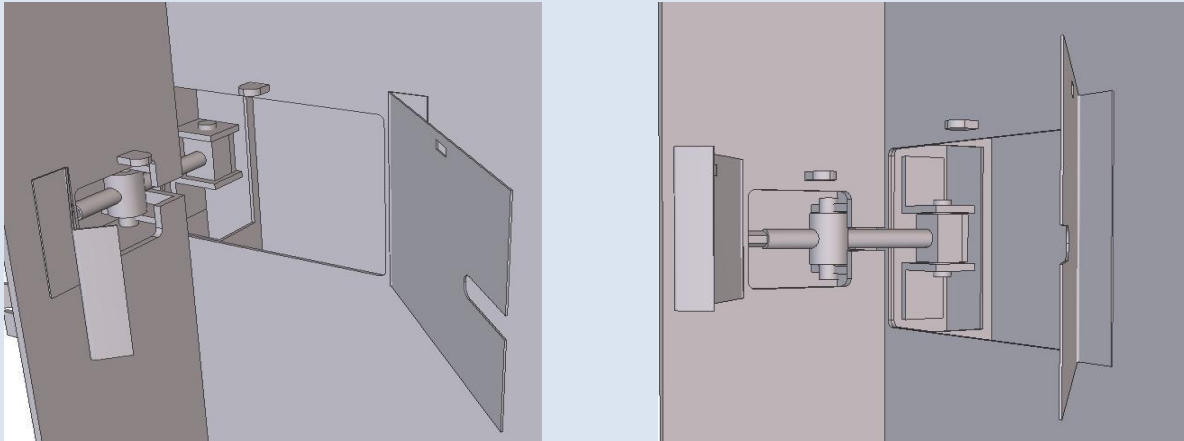
All our floodgates are manufactured to an environment agency approved design and come backed up with the full design calculations from an engineer with years of experience in this field.



Double Leaf Coastal Flood Defence Gate

Mk2 Locking Mechanism

We have now developed our Mk2 locking mechanism which is hidden from view completely, both in the open and closed positions. This means less maintenance / vandalism and the assurance that in the event of a flood the gates will operate hassle free. This system can be utilised on all of our standard Flood Defence Gates.



Mk2 Locking Mechanism



Single Leaf Flood Defence Gate

Flood Defence Gates – Standard Specification

Design

- BS EN 10025-2 : 2004 – S275JR Steel as minimum.
- Safety threshold design. All our gates have a flush threshold to prevent the need for a step to form the seal; this allows easy vehicular access for larger gates and trip free access for pedestrians.
- Fully qualified structural engineer (BEng (Hons), CEng, MStrucE) to produce design calculations.
- Fully qualified workshop operatives with company held Weld Procedure Qualifications Records (WPQR) and Weld Procedure Specifications (WPS).

Drawing

- All our drawings are created in a 3D modelling system. This allows us to electronically issue to the client for approval. Our drawings can be issued in DWG DXF DWF and PDF formats.
- The 3D modelling system allows us to import CAD/CAM data directly into our CNC machinery to ensure total accuracy.

Construction / Manufacture

- One piece frame to allow casting / fixing into the structural wall. This ensures there can be no errors and allows to gate to fit first time every time. Concrete anchor points for casting in by main contractor included.
- Gate leaf matrix manufactured from square hollow section and steel plate fully welded to both sides for flush finish.
- Machined Heavy Duty hinges with grease nipple points to ensure smooth operation.
- Machined Mk2 locking mechanisms.
- Neoprene seals housed in continuous steel channels around Jambs and Threshold.
- Magnetic Particle Inspection testing to welds and test certificates issued on request.

Protective finish

- All Steelwork is blast cleaned prior to any coating being applied.
- The standard paint system for our flood defence gates is a 400 Micron Aluminium hot metal fire spray system which is typically used for boat bottom interiors exposed to bilge water, fish holds etc. The client can specify any colour topcoat from the BS 4800 or RAL colour ranges.
- For more aggressive environments such as for coastal applications a Glass Flake epoxy system can be applied, typically these systems can offer 25 to 30 years until first maintenance and again the client can specify any colour topcoat from the BS 4800 or RAL colour ranges.

Security

- With the introduction of the Mk2 locking mechanism this ensures that the gates can be locked with a standard padlock and are completely hidden in both the open and closed positions of the gate.
- The gate can be locked open either back to the wall at 180 degrees or at 90 degrees to a lock back post. This is achieved by fixing corresponding padlock eyes in the gate and the wall / post.

Gate operation

- The Flood Defence gates can be operated by one person and closed and secured in just a few minutes.
- Due to the design of our gates there is no need to adjust the seals.
- The standard arrangement for a single leaf gate is to have the water pressure pushing the gate leaf onto the seals and frame, with the locking mechanism(s) being on the dry side. This is known within the industry as 'on seat pressure'. The gates do not rely on the water pressure to hold the gates closed, the seals are fully compressed by using the ratchet spanner provided thus providing a complete seal and peace of mind that no flood water will pass into the protected area.
- To open the gate the operation is simple and our MK2 Design allows the gate to be pushed from the seals very easily.

Non Standard options

- Stainless Steel Grade 316L which is generally used in marine applications due to its high resistance to corrosion can replace any of the steel sections used in the manufacture of the floodgate.
- Stainless Steel Grade 316L hinged seal covers can be fitted if required to protect the seals from vandalism. These covers come complete with padlock eyes to lock into position.
- Single Leaf Flood Defence Gates – 'off seat pressure'
- Double Leaf Flood Defence Gates – 'on seat pressure'
- Double Leaf Flood Defence Gates – 'off seat pressure' – although some of our competitors would advise strongly against this option because of the complexity in proving the design and their workshop limitations we understand in some cases it cannot be avoided.
- Timber Cladding can be face fixed to any of our Flood Defence Gates which can help with the aesthetics on projects where a steel faced gate does not fit with the surrounding area.

FLOOD DEFENCE GATES

We believe we are the only flood gate manufacturer to have successfully designed, manufactured, installed and tested to the full working height of 2.5m the largest 'off seat pressure' flood defence gate in the UK. This gate was manufactured for the Environment Agency and we worked with the main contractor & engineer to successfully complete in 2009.



Croft on Tees 'off seat pressure' Double Leaf Flood Defence Gate



Timber Clad Single Leaf Flood Defence Gate



Double Leaf Flood Defence Gate

Installation

- All site operatives carry CSCS cards and Method Statements & Risk Assessments will be provided prior to commencing on site.
- Installation is generally carried out in 2 phases.
- Phase 1 –The Gate frame is supplied to main contractor for them to cast into structural wall.
- Phase 2 – After sufficient time has lapsed and the concrete has had time to cure the gates can be hung on the hinges. Each gate leaf has lifting points to ensure a safe lift can be carried out on site.
- Site operatives will assemble and fit the hinges and make any site adjustments using the slotted connections to ensure the gate is balanced and that the seals are compressed when the gate is in the closed position.

Clients

- Doors & Metal Structures Ltd have successfully worked with numerous prestigious companies some of which include :



Contact

