bsi Flood Protection
KITEMARK™
KM713574

M3 FLOODTEC

Flood Defender Barrier

Installation Guide

At M3 we are continually searching the Globe for new technologies and working processes that we can harness to enable us to deliver Innovative solutions that benefit the Environment and provide enhanced value to our Clients

M3 Global Flood Technologies Ltd. 9a Wassage Way, Hampton Lovett Ind Est, Droitwich Worcestershire WR9 0NX. **Tel: +44 (0)1905 676467 Email: sales@m3floodtec.com**

www.m3floodtec.com

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Application & Key Benefits

The Defender Barrier is a manual demountable lightweight bespoke, system, engineered to protect residential, commercial properties and other small scale projects. The system is easily deployed and lightweight, but robust. Specially designed extrusions provide optimal sealing for reliable flood resilience.

Flood Barriers are a cost effective option for door and other types of aperture defence. Barriers can either be bought 'off the shelf' in a range of predetermined widths or can be custom made' to suit the specific property requirements.

This product is designed for the temporary mitigation of flood risk and should be seen as part of a suite of measures to reduce the risk of water entering a property.

They are designed to mitigate against all types of flooding up to a maximum height of 600mm.

Applications – include the following but are not limited to:

- Protect building apertures
- Along a waterway
- In a flood wall to provide vehicular or pedestrian access
- To surround low lying buildings, *e.g. pumping stations*
- To protect entrances to underground car parks
- To protect entrance ways between man-made bunds
- To protect underground public transport systems

BSI Standards

The M3 Floodtec Flood Defender Barrier is Kitemark™ Certified to BS 851188-1:2019 (Certificate Number KM 713574).

This product has been tested under laboratory conditions against the standard set of tests as defined in BS 851188-1:2019. Designated Maximum Water Depth (DMWD) of 0.6m. Acceptable leakage will not be greater than 500ml/h/m per hour in accordance with BS 851188-1:2019.

Principle of Operation and System Components

Principle of installation

The Defender Barrier is a demountable lightweight system comprising lightweight panels which slot in to aluminium posts that are inserted into shoes which in turn are anchored into the ground.

System Components & Terminology

In the following documentation the following terminology is used for the fundamental component parts of the system:

Defender Barrier – the lightweight wall panel which slots in to the aluminium posts – *supplied by distributor*

Post – the aluminium posts which allow the barriers to be held in the vertical position. It is secured to its shoe to enable a water tight seal with the ground to be made – *supplied by distributor*

Shoe – the steel hollow section which is grouted in to a ground bearing slab or bolted down to a concrete base - *supplied by distributor*

Base – the concrete sub structure or ground bearing slab into which the shoe is anchored, allowing the force of the water to be resisted – *designed and detailed by the client*

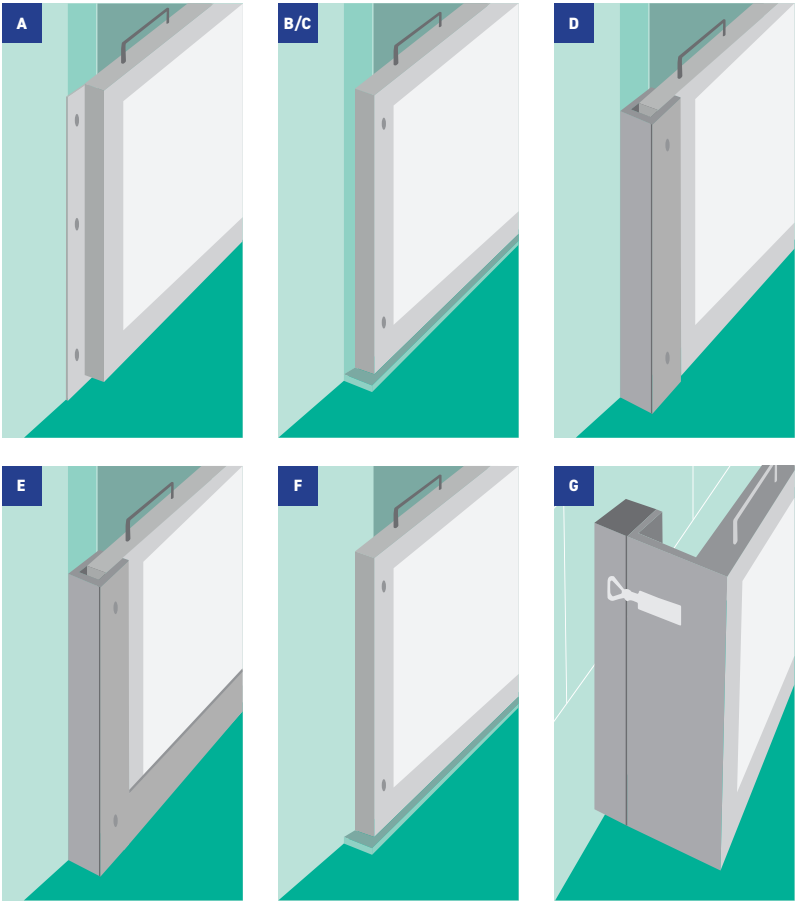
Site Locations

Whilst denoted a 'typical' application, this will have an infinite number of permutations, but the surveyor will try and use one of the basic configurations below in order to minimise production costs.

Defender Barrier can be used as individual units or in conjunction with posts to create long runs of demountable barriers.

Types of barrier are:

- **A** Wall mounted or stand-off
- **B** Nutsert into UPVC
- **C** Nutsert into Wood
- **D** Barrier into Vertical Rail
- **E** Barrier into U-Shaped Frame
- **F** Nutsert into Brick
- **G** Clip-On Barrier


A
B/C
D
E
F
G

Specification and Survey

Flood Defender Barrier

In order to ensure that the flood protection for your scheme is managed in a cost effective way we will review your specification and make any constructive comments that may be appropriate. This will start with a review of your site layout and then the layouts of the building or property that you are protecting. To maximise the benefit of our review we will need the following information:

Site layout

- Building plans and sections with levels.
- A simple brief of what the flood protection is trying to achieve.

In the absence of existing drawings, a site visit by one of our surveyors will be necessary, initially for quotation purposes and in the event of a project going ahead, a more detailed survey should be undertaken for manufacturing and installation details.

Once we have looked at the scheme we will discuss the proposals with you. We will visit the site and carry out a survey to establish the suitability of the Defender Barrier once it becomes apparent that this will form part of the overall flood protection scheme. We may seek permission to visit the site prior to this if it is deemed necessary to put a scheme together.

Risk Assessment

The use and deployment of any flood defence product should be considered in the context of the building relative to the risk of possible flooding. Single products alone may not give adequate protection to the whole building. It is therefore recommended that a full flood risk survey is undertaken to assess where flooding may ingress into the building and as such what measures should be deployed. Product compliance to BS 851188-1:2019 does not mean that it is suitable for all installations and locations.

Flood risk surveys should be undertaken by an appropriately competent and qualified professional for example a corporate member of the Chartered Institution of Water and Environmental Management, the Institution of Civil Engineers, or the Royal Institution of Chartered Surveyors or similar professional body. For details of approved Companies visit the Environment Agency web site www.gov.uk/government/organisations/environment-agency.

Installation

Preparation of Site

The installation of the Defender Barrier will require the site to be clear of all buried services before installation commences, as this may affect the location and construction of the bases. In all cases the areas where the seals are to make contact with the building, these are to be clean and free of debris.

Where the reveal / face of the building is extremely uneven e.g. rough stone, and cannot be flush pointed a UPVC profile is used to create a surface against which the barrier can seal against. Timber can be used but we no longer recommend this because it is prone to rotting in some circumstances, and also dimensional changes with moisture content.

The UPVC profile can be rebated into the stone, by grinding out a channel into which the profile can be sat. This enables the profile to be hidden as far as possible and therefore less obtrusive. The profile should be sealed with mastic to the stonework. Uneven steps or cills can either have a UPVC profile or aluminium channel fitted to enable the barrier to seal.

Installation of Type A

Wall Mounted or Stand-off

- Align barrier centrally, around door frame and below cill
- With a pencil mark holes to be drilled at top of standoff barrier, mark for fixings to enter at centre of brick NOT the mortar joint
- Offer the barrier up to the wall and drill a hole into the wall. Remove the barrier and fit the nutsert into the hole. Now secure the barrier using a thumb turn
- Repeat this process on the other side and continue until all bolts are in place
- Drill 8mm hole through top of standoff barrier, one on either side
- Place standoff barrier back around frame; mark the top holes into the brickwork
- Remove standoff barrier and drill two 10mm holes into the brickwork
- Tap in anchor fixings and knock in centre punch, this fastens the anchor fixings as they "splay" out into the brickwork
- Using the hand wheels bolt the standoff barrier onto the wall using top two fixings. Once held in place mark other holes (as many as needed for size of barrier) two either side and underneath
- Repeat as from stage 2 onwards

NOTE: Always fit barrier in order of drilling as this makes it easier (instruct occupier). Top left, then top right, then bottom left and right, then intermediate fixings (if applicable). DO NOT over tighten.

You need to establish a flat surface wherever a barrier seal comes into contact with a surface e.g. mortar joints, pebble dash surface.

Deployment Instructions

- Ensure floor, back seals and bottom seal are clean and free from obstructions
- Centralise panel to aperture, ensuring the seal is facing the aperture
- Align bolt holes in brickwork to bolt holes in barrier. Then, using hand wheels fasten the top two bolts into the brick work. Follow with all other bolts (depending on size of barrier this number will vary from two to six)
- Finger tighten the handwheels sufficiently so that no gap is visible between the wall and barrier seal

The instructions are important to ensure that all property occupiers/ users are fully trained on barrier deployment.

Installation of Type B

Nutsert into UPVC

Important: When surveying UPVC frames always make sure nutserts will go into the box section of the frames and not come through the door reveal where a door closes, or foul locks or screws.

Predrilled:

- Align barrier with sides of door frame to check all sides will go into the box section
- Place the barrier against the door frame and drill through the bottom left hole into the door frame using an 8mm drill bit
- Remove the barrier. Drill with an 11 mm drill bit and fit UPVC nutsert using FAR KJ28 riveter
- Place barrier against the door frame and tighten until the seal is touching. DO NOT over tighten
- Apply downward pressure on the right hand side of the barrier and drill through into the frame using an 8mm drill bit. Remove the barrier. Drill with an 11 mm bit and fit nutsert.
- Replace the barrier and tighten the bottom bolts
- Drill through the top two holes into UPVC using an 8mm bit. Remove the barrier, widen the hole with a 11 mm bit and fit top nutserts
- Refit the barrier with all four bolts and check for alignment

NOTE: Always fit the barrier in order of drilling as this makes it easier (instruct occupier). Bottom left, then bottom right, then top right, then top left. DO NOT over tighten.

Drilled on site:

- Align barrier with sides of door frame
- Mark four holes on aluminium to avoid hitting seals approximately 100mm from bottom and 150mm from the top, allow for any obstructions to be missed *e.g. door hinge*
- Using a small drill make pilot holes through the barrier
- Align barrier with frame so both sides are equal on the door frame
- Apply a little downward pressure on the barrier and drill through the barrier into UPVC using 8mm drill bit (bottom left first)
- Remove the barrier. Widen the hole using an 11 mm bit. Insert the UPVC nutsert using FAR KJ28 riveter into the door frame
- Align the barrier and tighten the bolt into nutsert until the seal is touching the door frame. DO NOT over tighten
- Remove the barrier and tighten the bolts
- Drill through the top two holes into timber using an 8mm bit. Remove the barrier, widen the hole with a 11 mm bit and fit the top nutserts
- Refit the barrier with all four bolts to check alignment
- Fix downward pressure brackets to both sides of the door frame leaving a 10mm gap between the bottom of the bracket and the top of the barrier, using the screws supplied
- Use bolt that goes through the downward pressure bracket to add any additional pressure to the bottom seal of the barrier

NOTE: Always fit the barrier in order of drilling as this makes it easier (instruct occupier). Bottom left, then bottom right, then top right, and then top left. DO NOT over tighten.

Deployment Instructions

- Ensure floor, back seals and bottom seal are clean and free from obstructions
- Centralise the panel to aperture, ensuring the vertical seal is facing aperture and the thick horizontal seal is on the bottom
- Apply gentle downward pressure to top of barrier in order to align bolt holes to both sides of the barrier
- Using the T-grip handle as supplied tighten the bolts sufficiently so that no gap is visible between the door frame and the barrier seal

The instructions are important to ensure that all property occupiers/users are fully trained on barrier deployment.

It is recommended that the barrier is deployed immediately at the commencement of a flood warning, and that it remains in place during the flood. The barrier can be deployed and left in place for longer periods of time, for example if the property is going to be left unattended during holiday periods etc.

Installation of Type C

Nutsert into Wood

Predrilled:

- Align barrier with sides of the door frame
- Align barrier with frame so both sides are equal on the door frame
- Apply a little downward pressure on the barrier and drill through the barrier into wood using 8mm drill bit (bottom left first)
- Remove the barrier. Widen the hole using a 10mm bit. Insert the nutsert into the door frame and tighten until it is flush with the frame
- Align the barrier and tighten the bolt into nutsert until the seal is touching the door frame. DO NOT over tighten
- Apply downward pressure on the right hand side and using an 8mm drill bit drill through the top hat washer and into timber
- Remove the barrier. Widen the hole with a 10mm drill bit and fit nutsert
- Remove the barrier and tighten the bottom bolts
- Drill through the top two holes into timber using an 8mm bit. Remove the barrier, widen the hole with a 10mm bit and fit top nutserts
- Refit the barrier with all four bolts to check alignment
- Fix downward pressure brackets to both sides of the door frame leaving a 10mm gap between the bottom of the bracket and the top of the barrier, using the screws supplied
- Use bolt that goes through the downward pressure bracket to add any additional pressure to the bottom seal of the barrier

NOTE: Always fit the barrier in order of drilling as this makes it easier (instruct occupier). Bottom left, then bottom right, then top right, and then top left. DO NOT over tighten.

Drilled on site:

- Align barrier with sides of door frame
- Mark four holes on aluminium to avoid hitting seals approximately 100mm from bottom and 150mm from the top, allow for any obstructions to be missed e.g. door hinge
- Using a small drill make pilot holes through the barrier
- Align barrier with frame so both sides are equal on the door frame
- Apply a little downward pressure on the barrier and drill through the barrier into UPVC using 8mm drill bit (bottom left first)
- Remove the barrier. Widen the hole using an 10mm bit. Insert the nutsert into the door frame and tighten until it is flush with the frame
- Align the barrier and tighten the bolt into nutsert until the seal is touching the door frame. DO NOT over tighten
- Apply downward pressure on the right hand side and using an 8mm drill bit drill through the top hat washer and into timber
- Remove the barrier. Widen the hole with a 10mnn drill bit and fit nutsert
- Remove the barrier and tighten the bottom bolts
- Drill through the top two holes into timber using an 8mm bit. Remove the barrier, widen the hole with a 10mm bit and fit top nutserts
- Refit the barrier with all four bolts to check alignment
- Widen the 8mm hole in the barrier outside edge to 15mm to insert top hat washer
- Fix downward pressure brackets to both sides of the door frame leaving a 10nnm gap between the bottom of the bracket and the top of the barrier, using the screws supplied

- Use bolt that goes through the downward pressure bracket to add any additional pressure to the bottom seal of the barrier

NOTE: Always fit the barrier in order of drilling as this makes it easier (instruct occupier) bottom left, then bottom right, then top right, and then top left. DO NOT over tighten.

Deployment Instructions

- Ensure the floor, the back seals and the bottom seal are clean and free from obstructions
- Centralise the panel to aperture, ensuring the vertical seal is facing the aperture and the thick horizontal seal is on the bottom
- Apply gentle downward pressure to the top of barrier in order to align the bolt holes to both sides of barrier. Use the bolts on the downward pressure brackets to fix the barrier in place whilst fixing the main bolts.
- Using the T- grip handle as supplied tighten the bolts sufficiently so that no gap is visible between the door frame and barrier seal. (In order as follows: bottom left, bottom right, top right, top left). DO NOT over tighten
- Give a final tighten to the bolt on the downward fixing bracket to ensure that a tight seal on the bottom seal of the barrier is maintained.

The instructions are important to ensure that all property occupiers/users are fully trained on barrier deployment.

Installation of Type D

Barrier into Vertical Rail

It is essential that the barrier's bottom panel is seated onto a flat non-porous surface to work effectively. Should there be any slight undulations in the surface, then the rubber seal on the bottom panel is designed to accommodate this up to a maximum of 3mm along the length of the barrier. Should the undulations be in excess of 3mm, then this can be addressed in one of two ways:

Two fixing options are available:

A: Flat Strip

Drill and fix the flat strip to the floor securely and seal with silicone to establish a level base. This could also be recessed into a step. Not suitable for rough or uneven circumstances such as tarmac.

B: Channel Section

Cut a channel section into the floor along the length of the barrier. This should be approximately 50mm deep by 50mm wide. This will allow for the insertion of a U-shaped aluminium extrusion and set with a grano and cement mix. Is more suitable for tarmac, rough concrete or slabs, channel section needs to be dug down to a suitable depth then using either concrete or grano, level.

Installation for Side Rails

- The rails have to be fixed to a flat surface and sealed with silicone
- Remove the L brackets from the rail
- Offer the rail up to the wall ensuring that a spirit level is used so that the rail is plumb
- Using the rail as a template, mark the fixing hole centres onto the wall and then remove the rail. Drill the marked holes and insert the rawl plugs into the openings. Clean off all excess dust

- Using a good quality silicone sealant, apply a liberal amount to the back face of the rail and the bottom of the rail and place the rail on the wall in its correct position. Push down, as much as possible and then screw the rail into position
- Sealant can now be applied to the profile of the rail which is in contact with the wall and floor. Finally, clean off any excess sealant and allow to set
- Repeat this procedure for the other rail
- Ensure that the downward pressure brackets are fixed at the top of both rails

Deployment Instructions

- Remove the L brackets
- Ensure the floor, the back seals and the bottom seal are clean and free from obstructions
- Centralise the panel between the rails and gently slide down, ensuring the smooth face of the barrier is facing to the front
- Replace the L bracket into the slot on the rail, place L bracket firmly against the rails, locate the two holes together and insert the 30mm bolt tightening by hand
- Apply gentle downward pressure to the top of the barrier using the bolts located in the downward pressure bracket
- Using the T-grip handle as supplied, tighten the bolts starting at the bottom left corner and then bottom right and the top two bolts, so that the barrier seals are pushed onto the inside of the rails. Ensure that no gap is visible between the barrier seal and the rail

Installation of Type E

Barrier into U-Shaped Frame

You can fix the U-shaped frame onto a variety of wall types, timber, brick or UPVC using the appropriate screw fixings.

Seal with silicone all surfaces of the frame which will come into contact with the building.

To fix the U-shaped frame into brick, refer to point above. If there is an uneven surface, e.g. stone, pebble dash, a channel may need to be cut into the surface so that the barrier sits flush on the wall.

The bottom of the U-shaped frame can be fitted to either an even or uneven surface. Please remember either option will need to be sealed. Another option for the base of the channel is to install the base into the ground by sinking the channel below ground level. We can supply you with another channel section where it can be placed upside down and within the channel when the barrier is not in use. This makes for a better and neater finished product when the barrier is not in use.

For deployment instructions refer to Barrier Type D.

Installation of Type F

Nutsert into Brick

NOTE: If uneven floor service, a base rail will be required.

- Centralise across the opening
- Mark four holes on aluminium to avoid hitting seals, 100mm from bottom, 150mm from top to ensure missing the mortar joints
- Using a small drill make pilot holes through barrier
- Line barrier with frame so both sides are equal on frame
- Apply a little downward pressure on barrier and drill through barrier into brick using 10mm bit, (bottom left first)
- Remove barrier, insert the nutsert into brick work and tighten till flush (using a spreader tool)
- On the barrier widen outer hole to the front face only, using 15mm bit to fit top hat washer Push top hat washer in and push bolt with metal washer in
- Line barrier up and tighten bolt into nutsert until seal is touching the brickwork so no daylight is visible. DO NOT over tighten
- Apply downward pressure on right hand side and using 10mm bit drill through and into brickwork
- Remove barrier and fit nutsert
- Refit barrier and tighten bottom bolts
- Place L shaped bracket against the wall 15mm from the outside edge of the barrier, ensuring that you miss the mortar joints and 15mm above the barrier, mark holes on the wall and remove barrier, drill holes in brickwork, use a ravel plug to fill hole prior to screwing the bracket into place — repeat on opposite side of the barrier
- Refit barrier and tighten all bolts

NOTE: Always fit barrier in order of drilling as this makes it easier (instruct occupier) Bottom left — then bottom right. Top right — then top left. DO NOT over tighten. Then apply small amount of pressure from the two bolts in the L shaped bracket, DO NOT over tighten.

Deployment Instructions

- Ensure the floor, the back seals and the bottom seal are clean and free from obstructions
- Centralise the panel to aperture, ensuring the vertical seal is facing the aperture and the thick horizontal seal is on the bottom
- Apply gentle downward pressure to the top of barrier in order to align the bolt holes to both sides of barrier
- Using the T-grip handle as supplied tighten the bolts sufficiently so that no gap is visible between the door frame and barrier seal. (In order as follows: bottom left, bottom right, top right, top left). DO NOT over tighten, then apply sufficient downward pressure using the L brackets

The above measures will ensure safe and effective deployment of the barrier.

Plant Equipment Required

The following is a list of plant & equipment required for a typical Defender Barrier installation:

- Mini excavator – suitable for the depth of the base required for chosen Defender Barrier size. Only required if posts are to be installed
- Hand tools – spade, pick, spanners, socket set, trench rammer compactor
- Power tools – compressor, drill and bit, grinder, breaker, poker vibrator for concrete backfill
- Means for removing spoil

Fixing of Barriers to Parent Material

All barriers should have a minimum of 2no. fixings each side and additional fixings should be added as follows:

- Heights of 1m and over – 3 fixings either side
- Widths of 1.3m up to 1.8m – 1no. fixing along the base
- Widths of 1.9m and over – 2 no. fixings along the base

Inspection & Maintenance

Inspection

The Defender Barrier should be inspected quarterly to ensure that there is no debris or refuse trapped along the length of the lid or at the guide posts / rail positions.

Maintenance

Typical Quarterly Maintenance Schedule:

- Check all of the rubber seals for signs of decay or damage, ensuring that the seals are fastened securely to the barrier
- Ensure that all barrier components are present (to be found in your deployment pack)

Typical Post Flood Maintenance:

- Post flood, when it is safe to remove the barrier, wash it down gently with cool soapy water, check that the seals are intact and store away once dry
- Post flood, all bolts should be sprayed with WD40 and stored away in your deployment pack for future use

Spare Parts

The barriers are built with a long design life in mind, and spare parts are not normally required. We hold a stock of spare parts and we keep records of all installations. Should any replacement part be required for any reason, we can arrange for the parts to be supplied or supplied and fitted.

Storage

All panels and posts should be stored away from direct sunlight and sources of extreme temperatures in order to prolong the lifespan of the rubber seals. The protective blue storage strips should be carefully replaced over the sides and base of the barrier.

Warranty

All Defender Barrier products carry a warranty against fabrication faults including any incurring leakages of more than the maximum set down by BSI in BS 851188. All barriers carry a 2 year manufacturers' guarantee.

In the event of a query relating to the installation of a Defender Barrier please feel free to contact the technical department.

The Flood Defender Barrier range is sold with the benefit of a manufacturer's warranty covering the following items for the following periods:

- Seals – 2 years
- Flood Board – 2 years
- Side Rails / Screw Fixings - 2 years
- Brackets - 2 years

To maintain the 2 year warranty on components the barrier must be serviced 12 months after installation at the occupants/owner's expense by a qualified and certified installer.

Troubleshooting

Unable to install the Barrier - Nutsert mount

- Check nutserts are secure and not loose in existing wall or door frame
- If loose or missing contact M3 Floodtec for advice

Unable to install the Barrier - side rail fixing

- Check rails are vertical and firmly fixed to walls
- If loose or damaged contact M3 Floodtec for advice

Loose or separated rubber seals

- Contact M3 Floodtec for further advice

Unable to get the barrier to seal in the frame

- Remove the barrier from the frame
- Make sure that the base rail and side rails are clear and free from obstructions, stones, grit or other debris
- Reinsert the barrier into the frame centralising the barrier in the frame
- Apply gentle downward pressure, position top brackets and screw in fixing bolts to anchor the barrier in place
- Tighten vertical fastenings from the base of the barrier working up the side rails until the seal is compressed against the inner face of the side rail - **DO NOT OVERTIGHTEN**

Lost or missing components

- Contact M3 Floodtec for replacement parts

Project Support & Technical Department

Our technical department will be able to assist with the specification and the provision of data relating to the structural performance of the Defender Barrier.

Contact details:

- Tel: 01905 676467
- Email: sales@m3floodtec.com
- Web: www.m3floodtec.com

Health & Safety

Recommended Health & Safety

It is highly recommended the correct PPE (Personal Protective Equipment) is worn at all times during installation. This includes but not limited to high viz vests, safety gloves, safety glasses, safety steel toe cap boots.

Always refer to Health & Safety Executive for advice on manual handling www.hse.gov.uk

Remove obstructions from the route, for a long lift, plan to rest the load midway on a table or bench to change grip. Keep the load close to the waist. The load should be kept close to the body for as long as possible while lifting. Keep the heaviest side of the load next to the body. Adopt a stable position and make sure your feet are apart, with one leg slightly forward to maintain balance.

It is imperative the Installation Guide is followed step by step – if any installations cannot be installed in such a way the installers are to contact M3 Floodtec.

Homeowners are advised to sign up to the Environment Agency flood alerts for their local area. Flood alerts give you notice time to deploy your flood resilience products and vacate in the event of a flood emergency. If you feel necessary contact the emergency services.

Access back into properties should be undertaken once flood waters recede.

Further Information

There are a number of different sources of flooding including:

Surface water (pluvial): Flooding from surface water happens when the local drainage system & surrounding terrain cannot cope with the rainfall. It is extremely difficult to predict precisely where surface water flooding will happen as it is dependent on ground water levels, intensity and duration of rainfall, and the local drainage network.

River (fluvial): River flooding occurs when there is too much water for the ground to absorb, and the surface runoff overflows the normal river channel.

Groundwater: Groundwater flooding occurs when water levels in the ground rise above surface levels. It is most likely to occur in areas underlain by permeable rocks, called aquifers. These areas can be extensive, regional aquifers such as chalk or sandstone, or they may be more local sand or river gravels in valley bottoms underlain by less permeable rocks.

Tidal: Coastal flooding that results from a combination of high tides and stormy conditions. If low atmospheric pressure coincides with a high tide, a tidal surge may happen which can cause serious flooding.

Runoff water: Surface runoff is the water flow that occurs when soil is infiltrated to full capacity and excess water from rain, melt water, or other sources flows over the land.

Sewer flooding: Sewer flooding occurs when sewers are overwhelmed by heavy rainfall or when they become blocked. The likelihood of flooding depends on the capacity of the local sewerage system. As a result, land and property can be flooded with water contaminated with raw sewage and rivers can become polluted by sewer overflows.

The Defender Barrier is manufactured from aluminium, PVC Board & rubber. Disposal of the product at end of life is non-hazardous and recommendation is for recycling at a local Council disposal site.

The Defender Barrier is designed for deployment in flood conditions, this by definition will have a degree of polluted water and this will not affect the performance of the product under normal conditions. The product is designed for general flood and sea water flooding conditions. If the product is being proposed for installation in locations where high levels of aggressive chemicals are present expert advice from your Flood risk surveyor should be sought prior to deployment.

M3 Global Flood Technologies Ltd.
9a Wassage Way, Hampton Lovett Ind Est
Droitwich, Worcestershire WR9 0NX
Tel: +44 (0)1905 676467
Email: sales@m3floodtec.com

m3floodtec.com