KINGSLEY PLASTICS LTD

FLOOD RESISTANT GRP BUILDINGS – OPERATION & MAINTENANCE MANUAL

BSI Certification: BS 851188-1:2019 + A1:2021

Document Reference: FRB/MAN/002

Version	Description	Author	Date	Approved	Date
1	Original document	C.Callanga	05.07.22	K.Down	05.07.22
2	Document authorised	M.Turner	06.12.22	K.Down	06.12.22
3	Manual updated & formatted	M.Turner	13.12.22	K.Down	13.12.22
4	Maintenance schedule updated	M.Turner	03.03.23	K.Down	03.03.23
5	Testing updated	E. Price	27.11.24	M.Turner	29.11.24

Kingsley Plastics Ltd, The Airfield, Winkleigh, Devon. EX19 8DW
01837 82154 - sales@kingsleyplastics.co.uk - www.kingsleyplastics.co.uk

1. INTRODUCTION

1.1 PURPOSE

The Flood Resistant Buildings are to be installed in any area, that are affected by flooding. The building protects the equipment and machinery stored within from flooding. Up to 1m above ground level. This document contains all the information required to the buildings, from installation through to operation.

This product can be suitable for all types of use, commercial or domestic properties, anywhere that is prone to flooding.

1.2 AUDIENCE

This document is for utility companies of whom wishes to protect their equipment, in flood risk areas and for those who operate within the buildings.

2. SYSTEMS DESCRIPTION

2.1 KEY FEATURES

- Bespoke dimensions, buildings can be made to fit each project.
- The main feature of the buildings is to provide protection within flood risks areas. The building is to prevent water ingress and prevent damage to internal equipment.
- The building allows entry through a lockable doorway, with each door leaf sizes up to 1220mm wide and can come in single or double configuration.
- Ventilation is an additional option. The kiosk is compatible with vent sizes up to 1000 x 1000mm.
- Exterior of the kiosk can come in different finishes, from textured to a brick effect finish.
- The kiosk has been tested to withstand impacts from debris.
- Once the building is installed, it can be flood ready within 3 minutes - each door set requires 3 minutes to be fully locked and sealed, as it only requires the operator to close and clamp the doors, then double check everything is secure.
- Buildings are designed to be fully manual, of which requires a human operator to ensure that all doors are closed and clamped down to create a seal.
- Kingsley Plastics Ltd has produced buildings for different industries that exposes the product to different chemicals. This is no different, the kiosk will be able to protect its contents against polluted water.

2.2 ENVIRONMENT

Flooding is becoming more of an issue with the ever-changing climate. The increase of intense rainfall, storms and levee failure, contributes to flooding. Flood plains are not the only environment at risk of flooding. The buildings are to be placed on a flat ground to allow correct installation in areas that are at risk of flooding.

For more information, please visit the following websites:

www.gov.uk/check-flooding - www.nationalfloodforum.org.uk - www.scottishfloodforum.org

2.3 GUIDELINES

The following procedures and information are supplied for the operations of the Flood Resistant GRP buildings. If the product is used any other way than it is intended or designed for, it may affect its performance, and / or warranty for which the manufacturer will not be held accountable.

2.4 TESTING

This product has been tested under laboratory conditions against the standard set of tests as defined in BS 851188-1:2019 + A1:2021. This includes testing the product for leakage under static water level of 900mm from ground level, above aperture threshold level. Waves up to 100mm high, dynamic impact and parallel currents up to 1.0m/s. The testing undertaken under this British Standard, excludes all other components of the flood resistance system. This product does meet the requirements of BS 851188-1 + A1:2021, therefore it allows a maximum leakage of 0.5ltr/hr per metre of product seal width or base length or aperture width.

Conformance of the product to BS 851188-1:2019 + A1:2021 does not mean it is suitable for all buildings or locations. If the user has any uncertainty about the suitability of the building, they should seek professional guidance.

When the product was tested, the size of the wall used was 3200 x 2250mm (WxH). It consisted of two panels to demonstrate multiple jointed together and will not cause water ingress. As per our certification, the kiosk has a maximum width of 7300mm and length of 7300mm. The height of the kiosk is limited to 3500mm.

The product was tested at a maximum designated water depth of 900mm above ground level, using fresh water.

2.5 WARRANTY

The Flood Resistant GRP building has an expected design life of 25-year from installation. Each building comes complete with the standard 12-month construction warranty. The building is manufactured to specific guidelines. Unauthorized alterations to the product in anyway, will result in voiding of its standard 12 Month Construction Warranty and, in extreme cases, may cause product to fail.

3. OPERATIONS

3.1 INSTALLATION

The Flood Resistant GRP buildings should be installed by a trained Kingsley Plastics engineers, to ensure that the product will perform as intended and protect its warranty. Due to the nature of the building, it can only be installed by authorised Kingsley Plastics engineers onto an approved platform.

All Flood Resistant GRP buildings must be bolted down onto a concrete plinth or steel subframe.
A qualified professional must carry out an inspection prior to installation, to ensure all possible water entry routes have been identified. Also, to ensure that the civils (of which the kiosk will be placed on) structure integrity is not compromised.

3.2 SAFETY PRECAUTIONS

- Ensure that the passage of entry through the doors is clear of obstruction throughout the entire travel.
- Do not force object through the doorway, if the object does not clear the door frame.
- When removing door steel plate, use handle / grab bars as installed.

3.3 OPERATION UNDER NORMAL & PRE-FLOOD CONDITIONS

OPENING DOORS

- Unlock the clamping levers.
  Rotate the clamping levers counter-clockwise until it disengages from the door.
- Use the grab bars to lift the steel plate from the door and move it to a safe location, not obstructing the passage through the door.
- Door can now open freely.

CLOSING DOORS

- Check all seals for damage prior to closing any door and upon each entry.
- Ensure all seals are 100% operable and not damaged in anyway.
- Ensure that there are no foreign objects in between the door and the neoprene seal.
- Repeat same procedure for opening the door, but in reverse.
- Ensure that the clamping lever locking eye holes align and is lockable.
- Ensure that the locking plate is securely tight against all the seals and that the unit is 100% flood resistant in all aspects before use with timely inspections.

PRE-FLOODING OR POTENTIAL FLOODING CONDITIONS

- If there is a suspected flood, the kiosk should be inspected.
- Ensure that all doors are properly closed and that there is no movement on the door leaves, by rotating the clamping leavers clockwise to further apply pressure on the door, continue to do this until it can no longer rotate.
- Try to apply the same amount of pressure throughout the door using the clamping levers.

3.4 FLOODING CONDITIONS

The door must remain closed at all times and can only be opened once any risk of flooding has ceased. Opening the door during flood conditions might prevent reclosing and damage existing door seals

3.5 POST FLOODING CONDITIONS

At the very minimum, inspect the kiosk, check for damages and perform maintenance, as stated within this document.

4. MAINTENANCE & INSPECTION

4.1 SEALS, FRAMES & EMBEDDED ITEMS

Visually inspect components for damage and misalignment. Adjust, repair, or replace if required – this must comply with initial tolerances and design.

4.2 FASTENERS & MECHANICAL CONNECTIONS

Fasteners and mechanical components must be inspected for damages and misalignment. If damaged, component must be replaced or repaired to design standards.

4.3 SEALANTS & WATER-STOPS

Check all seals on the doors, wall joints, base sealing and any others observed. Ensure that the sealant is not cracked and has not lifted or moved from its intended position.
Also check the compression rate of the door seals to make sure that it still operates as intended. If found that the sills don't comply with factory standard, seals are to be replaced.
When changing sealant, use Kingsley Plastics approved product and installation.

4.4 HOUSEKEEPING & CLEANING

Ensure that door seals and sealant are free of foreign objects. This can lead to damaging of components.
Keep the doorway clear of obstructions and floor of tripping hazards to avoid accidents. It is advised to keep the building clean inside and out.

4.5 INSPECTION

Minimum 12 monthly inspections and during / after each building access. Other times to be inspected, after each flood, damage, entry or adverse weather conditions.

4.6 RE-USEABILITY

Once the product or component is damaged it cannot be reused on the kiosk, as this may affect its ability to prevent water ingress.
Once a component is identified to be faulty, it must be replaced by appropriate personnel.
The kiosk is designed to have a 25-year life span, if its condition is no longer up to designed standards, it should be dismantled and disposed of appropriately. This also applies when the kiosk is damaged beyond repair.

5. TROUBLESHOOTING

5.1 DOOR ASSEMBLY

If the doors are not closing as designed, check the door seals and make sure there are nothing obstructing the door from achieving the closed position. If this does not resolve the issue, visually check the hinges and look for surface damages. If there is damage to the hinges, contact Kingsley Plastics to source a replaced. If the hinges are not damage, ensure all hinges is well lubricated.

5.2 VENTS

The vents are designed to allow water in. However, if the vents are no longer secured to its designed position, water ingress to the building might be possible. This can be determined by visually inspecting the vents and attempt moving it. If there is play in the vents, please contact Kingsley Plastics to determine a plan of action.

5.3 EXPLOSION RELIEF

If the kiosk has explosion relief as a feature, there would be 4 off steel assemblies placed towards the corners of the building, attached to the wall on to the roof via this assembly. This mechanism should be securely installed. If not, it should be tightened accordingly. The vertical rod of the mechanism should be able to move freely up and down through the wall C bracket. If this is not the case. contact Kingsley Plastics for assistance.

5.4 STRUCTURE

The building's structure can be visually inspected. If there are any breaks in the surface, please immediately contact Kingsley Plastics, as this could further damage the structure, especially if it's located externally. The building should be securely bolted down and structurally static, if this is not the case, contact Kingsley Plastics.

5.5 WATER INGRESS

The kiosk is allowed for an ingress of 0.5ltr/hr per metre. Even if that is the case, it is always good to resolve and leaks regardless of the size. Water ingress can only be present in event of flooding therefore, it can't be located till after the flood when it is safe. To locate the source of the ingress, look for wet areas around the inside edges of the kiosk and follow the water trail marks. Once source of the ingress is found, apply a generous bead of sealant over the area.

6. SAFETY PRECAUTIONS INCASE OF FAILURE

6.1 DOOR MECHANISM

In the event of a failure upon any of the door components, do not enter the kiosk or near the kiosk if a flood is impending. Contact Kingsley Plastics for advice and to request a replacement for the component to be replaced, when it is safe to do so.

6.2 SEALS & WATER-STOPS

In event of flooding and the seals and water stops have failed, stay away from the kiosk. Contact Kingsley Plastics for assistance, as the component needs to be assessed to be deemed if repairable.

6.3 EXPLOSION RELIEF

If the explosion relief mechanism is visibly damaged i.e., it's no longer securely attached to the wall and roof, parts of it are deformed, the area surrounding the faulty explosion relief should be sectioned off. Please contact Kingsley Plastics to get this corrected - the explosion relief system, does not affect the building's ability to keep water out.

6.4 STRUCTURE

If the building's structure is no longer stable for any reason, please vacate the building. Contact Kingsley Plastics for further assistance on how to deal with the matter moving forward.

7. DISCLAIMER

This product is designed for temporary mitigation of flood risk and should be seen as part of a collection of measures, taken to reduce flood water from entering and damaging internal equipment.

At all times, flood resistance of any kind can only occur and be expected, after the correct installation by trained personnel and continued maintenance, until such time any doors have been opened and entry is observed. Once this has occurred, please refer to this manual to achieve the flood resistance accordingly.

8. APPENDIX A: OPERATIONS & MAINTENANCE MANUAL APPROVAL

The undersigned acknowledge they have reviewed the Kingsley Plastics Flood Resistant Kiosk **Operations & Maintenance Manual** and agree with the approach it presents.

Changes to this **Operations & Maintenance Manual** will be coordinated with and approved by the undersigned or their designated representatives.

Signature: Print Name: Company Name: Job Title:	_____ _____ _____ _____	Date: _____
Signature: Print Name: Company Name: Job Title:	_____ _____ _____ _____	Date: _____
Signature: Print Name: Company Name: Job Title:	_____ _____ _____ _____	Date: _____

Building Component	Replacement - Years	Maintenance – Frequency & Requirements
Rubber Doorseals	Every 3 Years	Annually – Visual Inspection & Wipe Clean
Stainless Steel Hinges	Every 10 Years	Annually – Visual Inspection & Oil Lubrication

Locking Mechanism	Every 10 Years	Annually – Visual Inspection & Removal of Debris
External Vents	Every 10 Years	Annually – Visual Inspection & Oil Lubrication
External & Internal Sealant	Every 3 Years	Annually – Visual Inspection & Wipe Clean