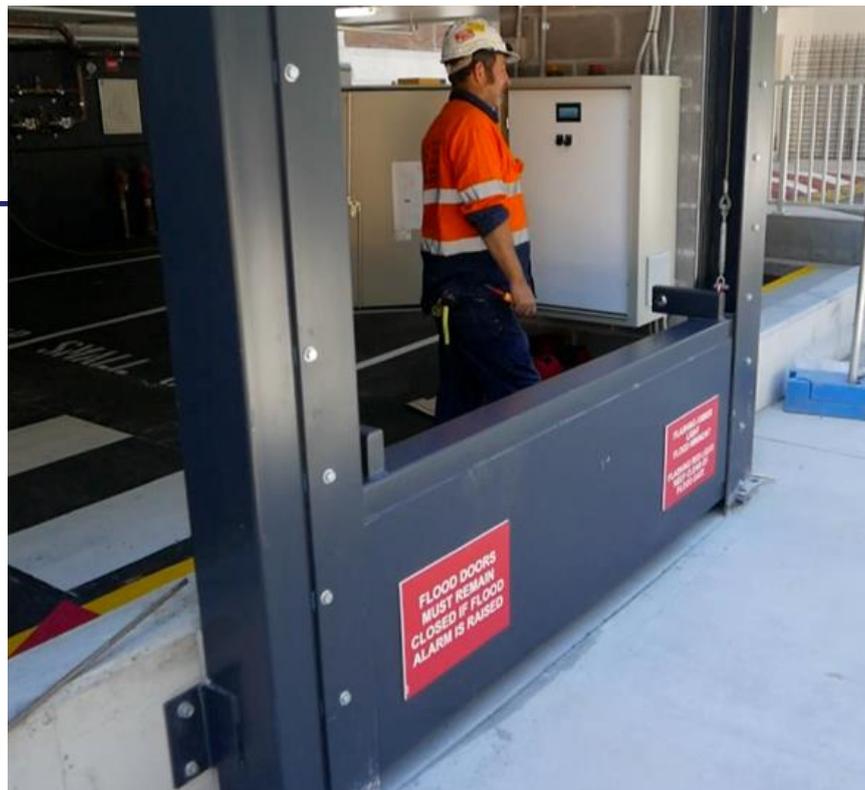


# AUTOMATED DROP DOWN FLOOD BARRIER PRODUCT INFORMATION



# FLOOD BARRIER OPERATION & MAINTENANCE MANUAL

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## **GENERAL INFORMATION**

This manual contains information regarding operation, and maintenance of custom made flood barrier assemblies.

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### **Operating Procedures**

The following procedures and information are supplied for the operation of the Automated Drop Down Barrier

Operation in a manner other than specified could result in damage or less than acceptable performance at time of need, for which the manufacturer will not be held responsible.

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### **General Principles of Operation**

The Automated Drop Down Flood Barrier is designed to be activated automatically when floodwaters reach a pre-determined level. The barrier control system features pre-deployment alarm warning system.

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### **Barrier type:**

The system has an electronic control system that will activate barrier deployment winch & activators, as well as audible and visual pending deployment alarms through a powder coated, locked control panel. Permanent power supply is a design feature. This is provided by the ability of the system to function on a 24-volt battery power pack with no dependence for operation on sites main power.

The 24-volt power pack is on permanent charge from site main power and typically remains in deployment standby mode for a minimum 21 days without receiving charge power from sites main power supply. The 24-volt power pack also provides a minimum of 10 deployment functions without receiving a re-charge.

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## SYSTEM ACTIVATION

System deployment controls are located in the flood barrier control pit. The pit contains two float switches that will activate the deployment power source, as well as the barrier alarm system, at pre-determined water levels.

## DEPLOYMENT SEQUENCE SCHEDULE

Automated Drop Down Flood Barrier has the following sequence of operation:

- Early flood warning followed by Barrier Deployment alarms will signal Automated Drop Down Flood Barrier will shortly be in operation.
- 20 seconds after Red alarms are activated a signal will be sent to retract the locking rams and the Automated Drop Down Flood Barrier will lower to the closed position.
- Once floodwaters recede, the float switch will return to its vertical position and the control panel will send signal to raise the barrier to the open position and the locking ram will extend locking the barrier in the raised position.
- Alarms will cease.
- Alarm system is designed to continue until such time as the Automated Drop Down Flood Barrier returns to open position; However, a system mute switch is available to building manager (or Flood Response Officer) to mute the volume of the audible alarm. This does NOT turn off the warning lights.
- The system operates off a permanently charged, fail safe, rechargeable battery power supply, which will guarantee deployment in the event of electrical power failure. This form of power supply is necessary as power is frequently lost during large storm events.

Automated Drop Down Flood Barriers have the following sequence of operation:

**-Starting position.**

Barriers are in standby position, fully raised above building entrances with locking pins engaged. Note: all multiple barriers will deploy simultaneously

**- Operation No 1.**

Signal received from high level float switch at main panel and hydraulic motor duty on.

**- Operation No 2.**

Locking ram solenoid signalled to disengage barrier high level locks

**- Operation No 3.**

Winch solenoid signal to lower barrier to ground seal position , limit switch to stop and hydraulic motor off.

**- Operation No 4.**

High level float switch terminated, main panel signal to barriers hydraulic motor duty on.

**- Operation No 5.**

Winch solenoid signal to raise barrier, limit switch to stop.

**- Operation No 6.**

Locking ram solenoid signalled to lock barrier in raised position and hydraulic motor off.

*Note: Hydraulic motor controlled via hydraulic solenoid valve – maximum hydraulic winch spooling speed 8m/min.*

## **SYSTEM ALARMS**

Two linked systems are installed:

### Early flood warning (AMBER)

Alarm beacons are located at the flood barrier control panel along with individual warning lights adjacent to the building entry. Amber alarms warn building occupants to move to higher ground and that flood barrier is preparing to deploy.

### Flood Barrier deployment imminent (RED)

Strobe light and audible siren are located on control panel. Flashing beacons are also provided adjacent to each building entry . Red alarm alerts the public or building occupants that flood barriers are about to close and to stand well clear.

*Do not attempt to enter the building when the alarms are activated.*

## SIGNAGE

Flooding Solutions recommends that warning signs are placed in close proximity to alarm beacons (see example below)

The sign could read as follows:

**Amber beacon:** FLOOD IMMINENT  
MOVE TO HIGHER GROUND

**Red beacon:** KEEP CLEAR FLOODGATE IN OPERATION  
DO NOT WALK THROUGH



(Example of signage shown)

## Maintenance

All flood barrier types used for property protection require a periodic maintenance regime and deployment test.

We recommend that the Ram Push system is checked for operation every month (this may vary based on complexity of hydraulic system) by the building owner, simply by operating the system from the control panel. Maintenance of the barrier is required to be completed by Flooding Solutions Advisory Group at recommended intervals i.e. annually or half yearly. The maintenance schedule includes the following:

- Testing battery pack for performance charge.
- Operating barrier and checking for correct time step function.
- Checking all alarm functions.
- Observing hydraulic system operation and checking for component fatigue or leaks.
- Checking seals and replacing if required.
- Checking all surfaces for quality of paint finish and repair if required.

# Flooding Solutions

**PRODUCT SPECIFICATION**  
**For AUTOMATED DROP DOWN**  
**Automatic/Self Closing Flood Barriers**

*Note: Designed for self-contained operation and not dependent on mains site power*

- 1. Barrier Support Frame**
  - Heavy duty duragal R.H.S – grade C450LO to AS 1163.
- 2. Barrier Blade/Cover**
  - One steel floor/coil plate, thickness to project design traffic/flood height loadings.
- 3. Barrier Hinge Bearings**
  - Selected heavy duty bushing and high tensile steel axel shaft.
- 4. Operational Hydraulic Rams**
  - Bare-co welded cylinders with industrial type pin eyes, 50mm to 100mm DIA bore, stroke length as required. Operational force range (14 PSI to 125PSI – dependent on site specific requirements).
- 5. Hydraulic Power Pack Unit**
  - Bucher hydraulics double acting 24 volt D.C model M – 3551, or equivalent.
- 6. Operational Control Float Level Switches**
  - Matelec 9006 series/cable length max 40m.
- 7. Operational Control Panel**
  - Australian made 240 volt / 24 volt D.C panel including 24 volt battery pack for system function and charger with powder coated cabinet.
  - Controls include interface of level sensor float level switches with:
    - Warning alarms, audible and visual
    - Security gates (if required)
    - Remote signal (if required)
    - Adjustable time step to barrier deployment signal
    - System testing function
    - B.M.S interface
    - S.M.S Facility

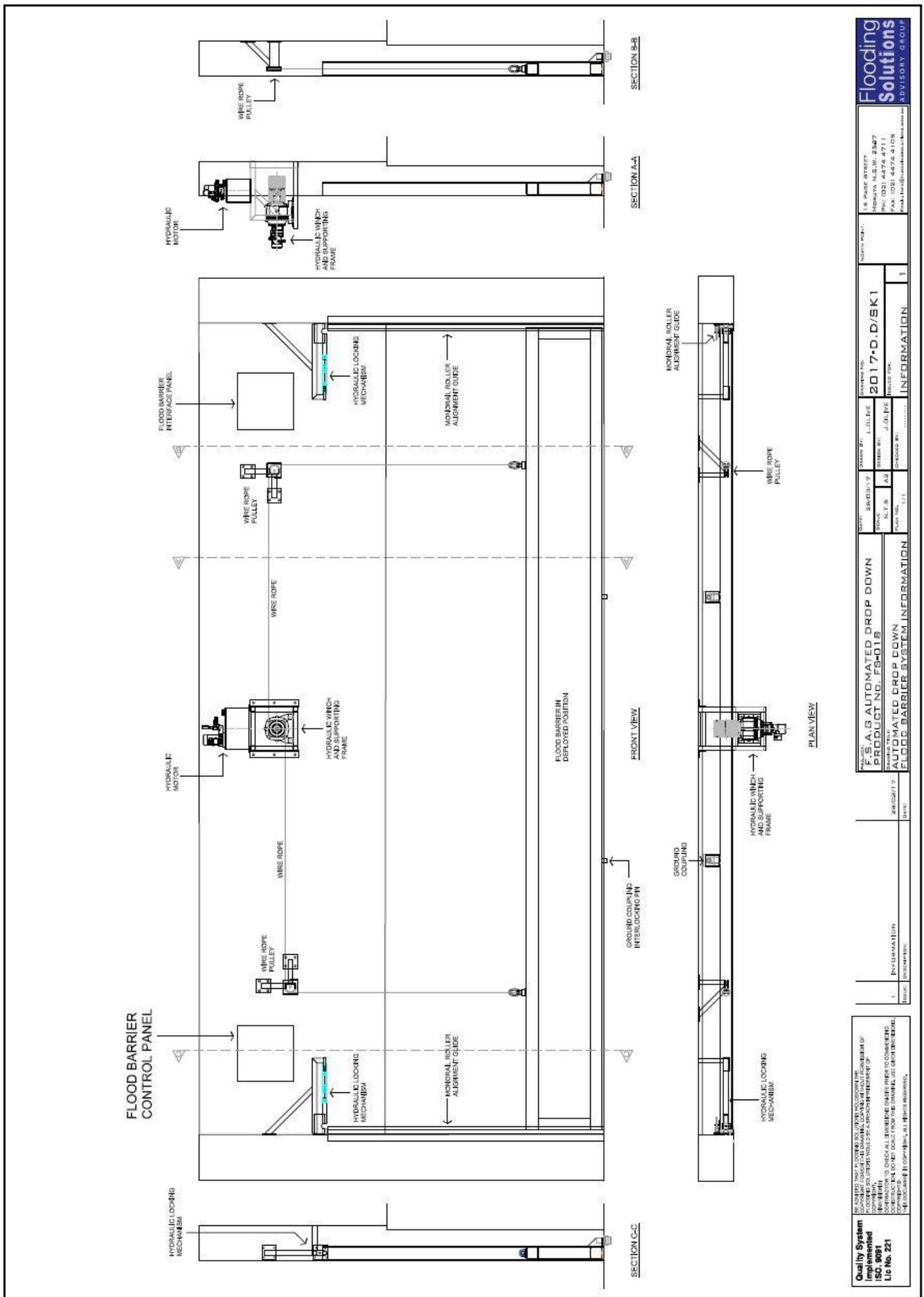
Flooding Solutions

**PRODUCT SPECIFICATION CONTINUED**  
**For AUTOMATED DROP DOWN**  
**Automatic/Self Closing Flood Barriers**

8. **Barrier Water Seals**
  - Durafoam series 6110 E.P.D.M selected profile
  
9. **Barrier Surface Finish**
  - A & I Coatings vitrethane 630 two pack aliphatic polyurethane min. 50 micron thickness. To exposed seal and seal cover plates
  - Checker plate aluminium Or recessed cover to facilitate infill (if required)
  
10. **Barrier High Visible Markings**
  - Dulux Weathermax HBR polyurethane L.F line markings. Colour high-viz yellow.

*Note: Flooding Solutions Advisory Group reserve the right to amend this product specification from time to time based on further and on-going product development. Flooding Solutions Advisory Group also undertake to promptly advise all committed clients of any proposed modification to design that may effect this product specification.*

# Flooding Solutions



<b>Quality System Implemented</b> ISO 9001 Lic No. 221		QUALITY SYSTEM INFORMATION F.S.A.G. AUTOMATED DROP DOWN PRODUCT NO. FS-018 24/03/21		DRAWING NO. 2017-D.D./SK1		DRAWING DATE 2017		DRAWING NO. 2017-D.D./SK1		DRAWING DATE 2017		DRAWING NO. 2017-D.D./SK1		DRAWING DATE 2017	
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