Annex A – Key Features of the Flood-Resilient Developments (FRD) guidebook

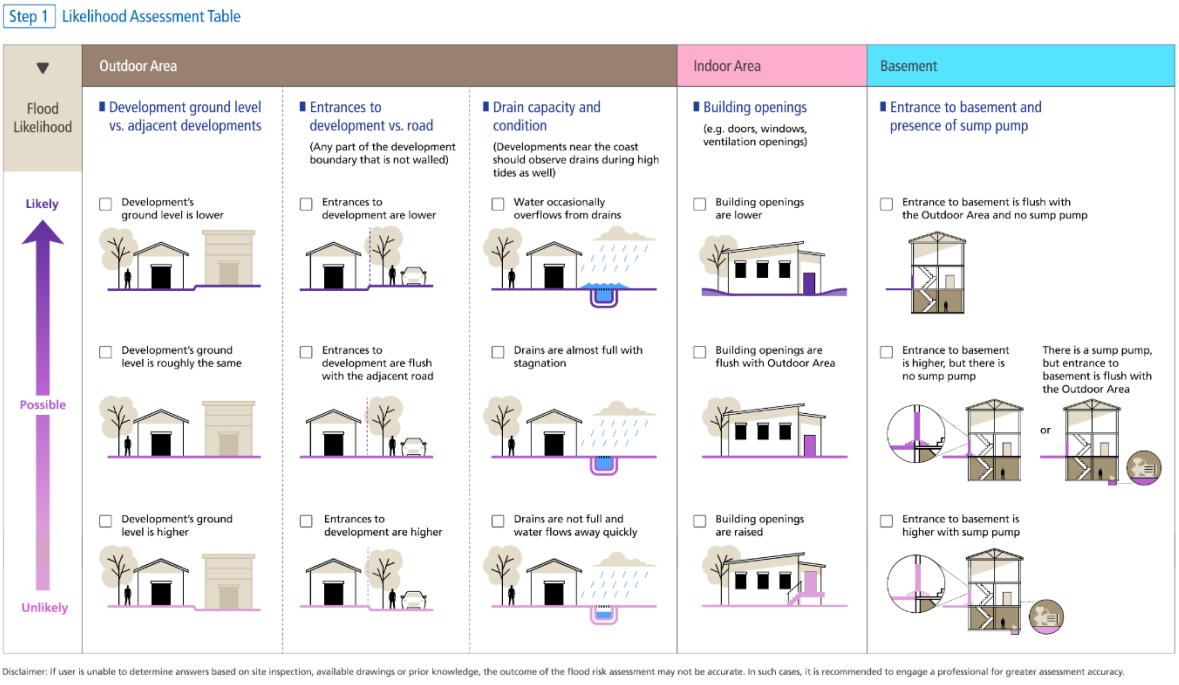
A1. Risk assessment matrix to assess flood risk

Central to the guidebook is a flood risk assessment matrix, which considers both the likelihood and potential impact of flooding. The tool comprises three steps –

Step 1: Determine the flood likelihood based on factors such as the development's ground level, drainage system, and features such as entrances and basements;

Step 2: Determine the flood impact across three aspects — human safety, damage to assets, and operational disruption; and

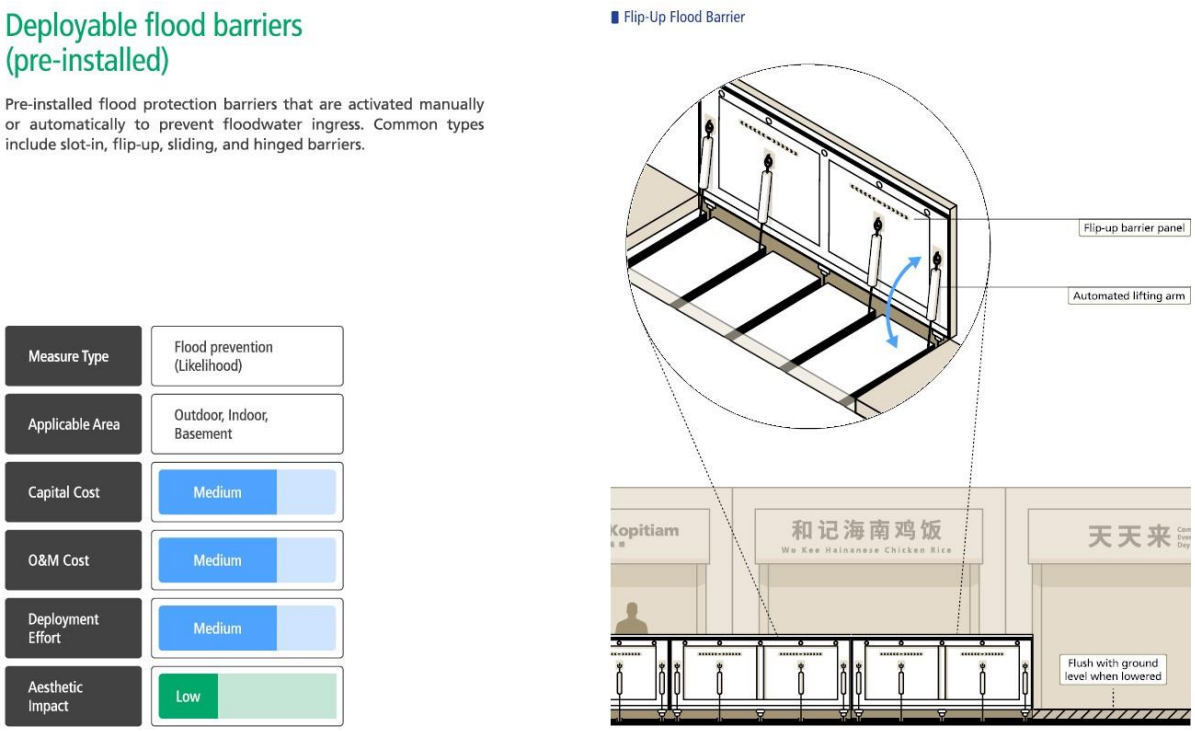
Step 3: Determine the risk category using a Flood Risk Matrix. The resulting risk category provides a structured basis for identifying and prioritising the appropriate flood management actions.



The visual template shown above guides users to assess the likelihood of the development flooding in three areas – outdoors, indoors, and basement (Credit: PUB)

A2. Tools to manage flood risks

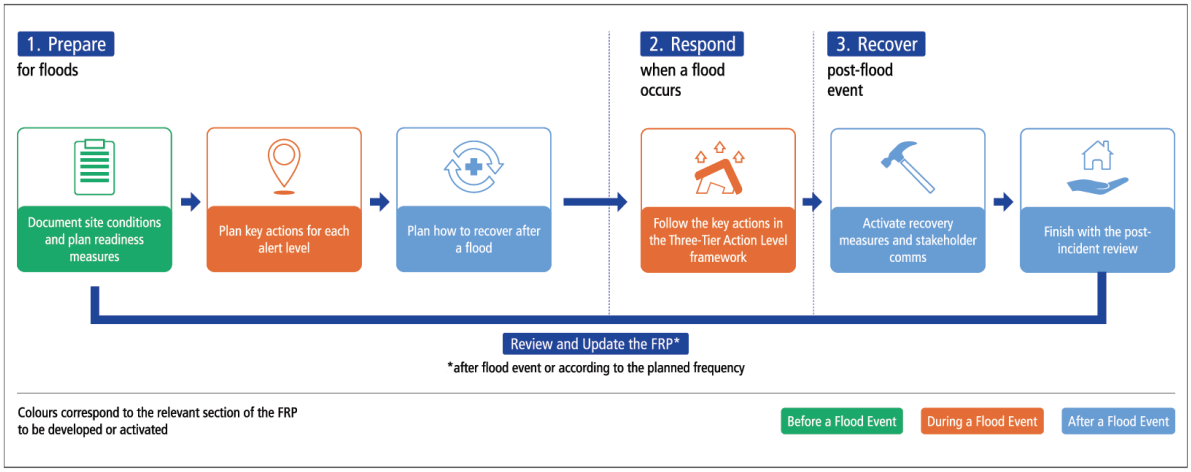
The guidebook also outlines a range of practical measures aimed at flood prevention and damage reduction to help users identify solutions that meet the unique needs and constraints of each development. Preventive measures include different types of flood barriers deployed to keep floodwaters out, while damage reduction measures include waterproof sealants for exterior walls and flooring, as well as mobile pumps. Adopting a combination of measures will enhance resilience and support faster recovery of developments when flooding cannot be fully avoided.



An excerpt from the FRD guidebook on pre-installed deployable barriers— a flood prevention measure (Credit: PUB)

A3. Flood response plan to enhance preparedness

The guidebook highlights the importance of putting in place a flood response plan. A well-developed flood response plan covers three key phases – prepare, respond and recover. The prepare phase defines roles, responsibilities, and response protocols based on flood risk assessments, sets out recommended drill frequencies, and ensures flood protection measures are properly maintained. The response phase recommends the implementation of a response system, proportionate to the severity of the flood. This includes a communications plan and evacuation procedures covering routes, safe zones, and coordination with emergency services. Finally, the recovery phase outlines procedures for damage assessment, clean-up, and restoration of building elements, systems, and flood-resilient measures to resume operations in a timely manner.



Key components of the flood response plan (Credit: PUB)

There is also a simplified flood safety guide for smaller developments, such as landed homes and shophouses. The flood response plan, together with the flood safety guide for homeowners and shophouses, enable all developments to translate flood awareness into structured response and recovery plans, facilitating timely and coordinated action when flooding occurs.

Flood Safety Guide for Homeowners and Shophouses (Credit: PUB)