Flood Resistance Measures

These measures are intended to prevent water from entering the building or reduce the amount of water that can enter.

1. **Raised Floor Levels:**
    - **Design:** Elevate the floor levels of the extension above the ground level. This is one of the most effective ways to prevent floodwater from entering the building.
    - **Implementation:** Raise the finished floor level (FFL) of the extension to be at least 300mm above the external ground level
2. **Waterproof Walls and Floors:**
    - **Design:** Use materials and construction methods that create a waterproof barrier.
    - **Implementation:**
        - Use impermeable materials for the lower sections of walls, such as dense concrete, to prevent water ingress.
        - Apply tanking membranes or waterproof coatings on the internal face of the walls and floors.
        - Consider solid concrete floors with a waterproof membrane. (All to be assessed during detailed design stage)
3. **Flood Barriers and Doors:**
    - **Design:** Install flood-resistant doors and windows.
    - **Implementation:**
        - Use flood-resistant doors with integrated seals and barriers that can be deployed quickly during a flood warning.
        - Consider installing demountable barriers that can be fitted across doorways and low windows.
4. **Air Brick Covers:**
    - **Design:** Protect openings in the building that are potential entry points for floodwater.
    - **Implementation:** Install covers over air bricks that can be closed during a flood to prevent water ingress.

Flood Resilience Measures

These measures assume that some water might enter the building and focus on minimizing damage and making recovery easier.

1. **Flood-Resilient Materials:**
    - **Design:** Use materials that are less susceptible to water damage and can withstand short-term flooding.
    - **Implementation:**
        - Use materials like concrete, ceramic tiles, or vinyl flooring instead of wood or carpets.
        - Use lime-based plaster instead of gypsum plaster, as it is more resistant to water damage.
2. **Raised Electricals and Utilities:**
    - **Design:** Position electrical systems and utilities above the predicted flood level.
    - **Implementation:**
        - Install electrical sockets, switches, and fuse boxes at least 1 meter above floor level.
        - Place boilers, water heaters, and other utilities on higher floors or on raised platforms.
3. **Flood-Resistant Fixtures:**
    - **Design:** Select fixtures that can withstand water exposure.
    - **Implementation:**
        - Use stainless steel or plastic kitchen units instead of wooden ones.
        - Opt for raised skirting boards or use water-resistant materials for skirting.
4. **Sacrificial Elements:**
    - **Design:** Include elements that are designed to be easily replaced if damaged by flooding.
    - **Implementation:**
        - Use removable or low-cost materials for finishes and non-structural elements like internal walls.
        - Design spaces where floodwater can be allowed to enter without causing significant damage, such as a utility area with a drain.
5. **Internal Layout:**
    - **Design:** Arrange the internal layout to minimize flood damage.

- **Implementation:** Position living areas on higher floors or at the back of the property, with less critical rooms like utility rooms or garages in lower areas prone to flooding.

6. **Drainage and Landscaping:**
    - **Design:** Enhance site drainage and manage external water flow to minimize the risk of water reaching the property.
    - **Implementation:**
        - Use permeable paving materials for external areas to reduce surface water runoff.
        - Implement landscaping features like swales or rain gardens to direct water away from the property.