Bathroom Pods on Construction Sites

This Loss Prevention Standard provides guidance on the use and installation of modular bathroom units in Construction projects.

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Introduction

Bathroom pods are factory-built and pre-finished modular units that are used in new construction projects. Their use helps reduce programme duration, minimise on-site labour and improve build/finish quality.

Bathrooms pods however, introduce specific Escape of Water (EoW) risks, particularly around connections, handling, commissioning, and integration into the building's systems, that require close management.

Common Types of Bathroom Pods

- **GRP (Glass-Reinforced Plastic) Bathroom Pods**. Made primarily from moulded GRP shells. Floors, walls, and ceilings are often seamless, creating a watertight pod, and commonly used for student accommodation, hotels, healthcare and build-to-rent (BTR) applications.
- **Steel-Framed Bathroom Pods**. Constructed using a steel frame clad with a dry board, tiles, or other finishes. These offer the closest match to traditional construction and are commonly used for high-end residential premises, premium hotels and complex or custom layouts.
- **Hybrid Bathroom Pods**. These combine different construction materials, typically steel framing with GRP elements like shower trays or ceilings and are commonly used for projects needing a balance of durability and finish quality, such as student accommodation and mid-tier hotels.

Managing the Risks

Specific controls are required at each stage of the construction process to reduce the risks associated with bathroom pods. These include:

Pre-Construction Phase

- **Design Coordination.** Ensure bathroom pod manufacturers provide detailed drawings showing pipework entry points, drainage interfaces, water isolation locations and testing and commissioning requirements.
- Cross-check interfaces with the building's mechanical systems.
  - ✓ The **Escape of Water Prevention and Management on Construction Sites – The Joint Code of Practice on the Prevention and Management of Escape of Water on Construction Sites and Buildings Undergoing Renovation**, published by the Fire Protection Association, stresses that both permanent and temporary water systems pose escape of water risks.

- **Specification of Quality Standards**. Specify requirements for factory pressure testing of: Hot and cold-water pipework, waste connections and any integrated appliances (e.g., electric showers). Ensure pod suppliers conform to recognised industry best practice for leak prevention, consistent with JCoP expectations for plumbing system competence/quality.
- **Protective Coverings**. Any internal/external packaging and temporary coverings must be fire retardant and meet Loss Prevention Certification Board (LPCB) Loss Prevention Standard **LPS 1207: Requirements for the LPCB approval and listing for fire performance of temporary protective covering materials for use in the interior of buildings**, or equivalent standard.
- **Risk Workshops**. Ensure early collaboration between pod manufacturer, Principal Contractor, MEP Contractor and Insurers.

Delivery and Handling Phase

- **Off-Site Manufacture Controls**. Confirm pods were tested before dispatch and obtain Factory Acceptance Test (FAT) certificates. Pods should be appropriately wrapped and photographic evidence of pod/wrap condition documented.
- **Transport and Lifting**. Inspect pods for damage on arrival, as any damage could compromise watertight seals or fixtures and ensure pods are lifted via manufacturer-approved lifting points or system.
- **Storage**. Storage on site should be short term, with pods located under cover and protected from weather infiltration. Any temporary coverings applied on site must be fire retardant and meet LPS 1207 or equivalent standard.

Installation Phase

- **Pre-Installation Checks**. A thorough inspection of each pod must be completed prior to installation. This should include identification of cracked basins, toilets or tiles; damaged or loose fittings and missing caps or protective covers. In addition, a visual check should be undertaken for seals around shower trays, baths, and penetrations.
- **Pipework and Services Connection**. All work on the hot and cold-water feeds, waste pipes and ventilation ductwork, must be undertaken by a competent contractor.
- **Accessibility**. Ensure permanent accessibility to riser connections.
- **Connection Integrity**. To reduce the risk of damage during installation, it is recommended that:
  - ✓ Installed and checked in accordance with manufacturer guidelines.
  - ✓ Systems use colour-coded or labelled pipes to reduce misconnections.
  - ✓ Mechanical couplers are correctly torqued (not over-tightened).
  - ✓ Falls on waste pipes are verified as correct to help avoid blockages and backflow.
  - ✓ A permit to close procedure is undertaken prior to encapsulating the pod.

Operational Controls During Construction

- **Water Isolation Strategy**. The Water System Management Plan (WSMP) and the Water Emergency Response Plan (WERP) should be extended to include a water isolation plan, so that individual floors or pod groups can be shut off independently.
- **Monitoring**. Site inspections should be extended to include regular visual leak inspections (recommended daily). Active Automatic Flow Monitoring Shutoff (AAFMS) devices should be provided. They can help detect leaks promptly and are highly successful in minimising losses or detecting abnormalities.

- **Incident Response Plan**. The WSMP and WERP should include, positions of emergency shutoff valves, contact details for the emergency response team, emergency clean up equipment (e.g., wet vacs, absorbent pads, temporary sump pumps) and AAFMS devices.

Testing and Commissioning Phase

- **Pressure and Flow Testing**. A competent contractor must conduct pressure testing on all connected water systems in line with manufacturer's recommendations and project specifications.
- **Drainage Testing**. A competent contractor must perform both static tests (filling traps and wastes) and dynamic tests (running water through fixtures) as part of the commissioning procedure.
- **Overnight and Out-of-Hours Protection**. All water supplies to newly commissioned systems must be isolated outside of normal construction hours. The use of AAFMS devices to automate this process is recommended.
- **Completion Inspections**. Upon completion of the installation, the pods should be inspected to ensure all fixtures function correctly, seals are intact and there is no evidence of leaks. A record of all inspections, tests and sign-offs should be provided to the Principal Contractor.
- **Interface Verification**. An interface inspection to ensure the co-ordination between the pod structure, building frame, service risers and fire-stopping penetrations should be completed and recorded.

  Refer to the Aviva Loss Prevention Standard **Escape of Water on Construction Sites** for further guidance.

Handover and Quality Assurance

- **Documentation**. As part of the final sign off, the following documents should be provided; factory and on-site test certificates, manufacturer Operational and Maintenance (O&M) manuals and inspection photographs.

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Sources and Useful Links

- Escape of Water Prevention and Management on Construction Sites - The Joint Code of Practice on the Prevention and Management of Escape of Water on Construction Sites and Buildings Undergoing Renovation

Note: Whilst UK standards and legislation are referenced in this document, other international standards and legislation should be referenced where applicable.

Additional Information

Relevant Aviva Loss Prevention Standards include:

- **Escape of Water on Construction Sites**
- **Escape of Water – 10 Top Tips**
- **Escape of Water – Responding to Incidents**
- **Escape of Water – Installation and Maintenance**
- **Emergency Response Teams – Property**

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