

# Wat 03 Water leak detection and prevention

(All buildings)

## Aim

To reduce the impact of water leaks that may otherwise go undetected.

## Overview

Assessment type	Available credits	Applicable assessment criteria
Fully fitted	2	1,2 (see ref 2.0, 2.1 and 2.2)
Shell and core	2	1,2 (see ref 1.0)
Shell only	1	1
Residential: Fully fitted	2	1, 3-4 (see ref 2.3)
Residential: Partially fitted	1	3-4
EU Taxonomy	-	None

## Minimum standards

Rating level	Criteria
-	None

## Assessment type specific notes

Reference	Assessment type specific note
1.0	<p><b>Shell and core – WC area or facilities</b></p> <p>The water supplies to WC areas or facilities must be assessed as per criterion 2 regardless of whether or not the WC areas or facilities are fitted out.</p>

## Building type specific notes

Reference	Building type specific note
2.0	<b>Healthcare</b> Flow control devices criteria are not applicable to toilet facilities in clinical areas.
2.1	<b>Residential institution</b> The credit for the specification of flow control devices in WC areas or facilities does not apply to ensuite facilities in residential areas. For example: ensuite facilities in individual private bedrooms and a single bathroom for a collection of individual private bedrooms in halls of residence, key worker accommodation or sheltered accommodation.
2.2	<b>Short term stay residential institutions (such as hotels)</b> The credit for the specification of flow control devices in WC areas in hotel rooms can be achieved through providing the required flow control devices to groups of 10 rooms, rather than to each individual room.
2.3	<b>Residential – Single dwellings</b> Only criterion 3 applies.

## Issue specific notes

Reference	Issue specific note
3.0	<b>No installed fittings</b> Where a project under assessment will contain no installed fittings and therefore there is no water supply to the building this issue is filtered out.

## Assessment criteria

This issue is split into three parts:

- Leak detection system – one credit
- Flow control devices (all buildings except residential) – one credit
- Leak isolation (residential only) – one credit

### Leak detection system – One credit

- 1 Install a leak detection system capable of detecting a major water leak:
  - 1.a On the utilities' water supply within the building, to detect any major leaks within the building.

AND

  - 1.b Between the building and the utilities' water supply, to detect any major leaks between the utilities' supply and the building under assessment.

### Flow control devices (all buildings except residential) – One credit

- 2 Flow control devices that regulate the supply of water to each WC area or facility according to demand are installed.

## Leak isolation (residential only) – One credit

- 3 Isolation valves are in an accessible place allowing for hot and cold water to be isolated by hand separately for the following supplies:
  - 3.a Incoming supply to the dwelling
  - 3.b Taps
  - 3.c Showers
  - 3.d Heating or hot water systems
  - 3.e Appliances (e.g. dishwasher, washing machine etc.)
- 4 The isolation valves must be clearly labelled.

## Checklists and tables

None

## Methodology

### M1: Leak detection system

The leak detection must be either:

- 1 A permanent automated water leak detection system that alerts the building occupants to any leaks.  
OR
- 2 An inbuilt automated diagnostic procedure for detecting leaks.

It must be:

- Activated when the flow of water passing through the water meter or data logger is flowing above a pre-set maximum rate for a pre-set period. This usually involves installing a system which detects higher than normal flow rates at meters or sub-meters. It does not necessarily require a system that directly detects water leakage along a part of or the whole length of the water supply system.
- Able to identify different flow and therefore leakage rates. For example: continuous, high or low level, over set time periods. Although high and low-level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between them. This allows it to be programmed to suit the building type and owner/occupier's usage patterns.
- Programmable to suit the owner / occupier's water consumption criteria.
- Where applicable, designed to avoid false alarms caused by normal operation of large water consuming plant such as chillers.

Where there is physically no space for a leak detection system between the utilities water meter and the building, alternative solutions can be used, provided that a major leak can still be detected.

For all pipework which is the responsibility of the building owner or occupier leak detection is required between the building and the utilities water meter. This requirement is applicable regardless of the length of the pipework.

For campus type developments or those with multiple buildings on the same site served by common pipework, leak detection is required both within the building and externally for the length of pipework that exclusively serves that building.

## M2: Flow control devices

Flow control systems may control combined WC areas, such as male and female toilets within a core; they are not required for each individual sanitary appliance. However, all WCs must have either individual or block and group flow controls. The criteria are set to encourage the isolation of the water supply to each WC block when not in use.

The flow control criterion for this issue does apply to facilities which have only a single WC (potentially within smaller or low occupancy buildings). In these instances shut-off could be provided via the same switch that controls the lighting (whether proximity detection or a manual switch).

The following types of flow devices meet the criteria:

- A time controller, i.e. an automatic time switch device to switch off the water supply after a predetermined interval.
- A programmed time controller, i.e. an automatic time switch device to switch water on or off at predetermined times.
- A volume controller, i.e. an automatic control device to turn off the water supply once the maximum pre-set volume is reached.
- A presence detector and controller, i.e. an automatic device that switches water on and off, depending on the detection of occupancy or movement.
- A central control unit, i.e. a dedicated computer-based control unit for the overall management of a water control system, utilising some or all the types of control elements listed above.

## M3: Leak isolation

Leak isolation valves may be located within a cupboard or access hatch, where the valve can be accessed without undue hazard or difficulty. Examples of non-accessible locations are behind kitchen appliances or under flooring.

## Compliance notes

Reference	Terms	Description
CN1	Water utilities meters	Where there is a water utilities' meter at the site or building boundary, it may be necessary to install a separate flow meter (or alternative measurement system) just after the utility meter to detect leaks; however, if the water utility company agrees to some form of leak detection being installed on their meter, this would also be acceptable.
CN2	Extensions to existing buildings	If the water supply to the new extension is via the existing building, then the water supply to the existing building must be assessed against the criteria of this issue.
CN3	Building safety-critical systems, such as sprinklers and fire hydrants	For building safety-critical systems, such as sprinklers and fire hydrants, it may not be possible to fully meet the criteria. Where this is confirmed by an appropriate project team member, alternative approaches can be used. These must show how they meet the aim of the issue by detecting and alerting building management to major leaks.
CN4	Isolation valves in residential dwellings	For each individual dwelling, even apartments in multi-dwelling buildings, incoming water for the entire dwelling needs to be able to be shut off. In addition, the water to all the listed water supply systems (criteria 3a-e) needs to be able to be turned off separately. It also needs to be possible to turn off hot and cold water separately for the respective water supply system.

## Evidence

Criteria	Interim design stage	Post construction stage
All	<p>The relevant sections or clauses of the building specification or contract.</p> <p>Design drawings or metering schematics.</p> <p>Where available, manufacturer's product details.</p>	<p>Assessor's site inspection report and photographic evidence.</p> <p>Final construction drawings or equivalent.</p> <p>Manufacturer's product details.</p>

## Definitions

### Clinical areas

Areas of the building in which medical functions are carried out that require specific restricted environmental conditions, affecting factors such as humidity, daylighting, temperature etc. (e.g. X-ray, operating department, delivery room etc.).

### Isolation valve

An isolation valve is a valve in a plumbing system that stops the flow of water to a given location for maintenance purposes. This enables the flow of water to a terminal fitting, appliance or whole system (e.g. a tap, washing machine, heating system or whole home) to be isolated, thus allowing maintenance or the replacement of components or systems.

**WC areas or facilities**

WC areas or facilities refers to cold water supply to taps, WCs, and urinals. The water supply system must not allow the cold water to automatically switch off in the showers while the hot water is still running to avoid scalding from hot water.

**Additional information**

None