

# Wat 04 Water efficient equipment and systems

(All buildings)

## Aim

To recognise and encourage the procurement of water efficient equipment and systems for applications other than sanitary use in new buildings to reduce water consumption in operation.

## Overview

Assessment type	Credits available	Applicable assessment criteria
Fully fitted	3	All (see ref 3.0)
Shell and core	3	All (see ref 3.0)
Shell only	0	Not applicable
Residential: Fully fitted	3	All (see ref 3.0)
Residential: Partially fitted	3	All (see ref 3.0)
EU taxonomy	-	None

## Minimum standards

Rating level	Credits
-	None

## Assessment type specific notes

Reference	Assessment type specific note
-	None

## Building type specific notes

Reference	Building type specific note
-	None

## Issue specific notes

Reference	Issue specific notes
3.0	<p><b>No systems or equipment with significant amount of water usage</b></p> <p>This issue will be filtered out where there are no systems and equipment that use significant amounts of water for non-sanitary purposes.</p>

## Assessment criteria

This issue is split into three parts:

- Prerequisite – Microbial contamination
- Predict non-sanitary water consumption – One credit
- Water efficient equipment and systems – Two credits

### Prerequisite - Microbial contamination

- 1 All non-sanitary water systems in the building are designed in compliance with the measures outlined in national best practice regarding microbial contamination.
- 2 Documented procedures shall be in place to minimise the risk of microbial contamination during the operational stage. The procedures shall be handed over to the building owner upon project completion.

### Predict non-sanitary water consumption – One credit

- 3 Estimate the annual operational water consumption for non-sanitary use in the building.

### Water efficient equipment and systems – Two credits

- 4 Identify systems and equipment that use significant amounts of water (i.e.  $\geq 1,000$  litres per year) for non-sanitary uses that are included in the project specification. See M1.
- 5 Determine the ratio of in-scope non-sanitary water consumption to sanitary water consumption to determine the number of credits available, see M3.
- 6 Demonstrate installed non-sanitary water-using systems and equipment are water efficient, see M2 for water consumption estimates and M4 for compliance routes.
- 7 Determine the number of credits awarded based on the percentage of non-sanitary water demands that are provided by water efficient equipment in accordance with M4, see Table 67.

## Checklists and tables

Table 67: Credits available in Wat 04

	Percentage of in scope non-sanitary water consumption that is provided by water efficient equipment	
	1 credit	2 credits
0–20% In-scope non-sanitary water consumption / sanitary water consumption	-	-
> 20–40% In-scope non-sanitary water consumption / sanitary water consumption	>50%	-
> 40% In-scope non-sanitary water consumption / sanitary water consumption	>50 %	>80 %

Table 69: Deemed to comply requirements for non-sanitary water-using systems and equipment

Type of system or equipment	Requirements
Swimming pools	Automatic or semi-automatic pool covers, or 'liquid' pool covers with an automatic dosing system, are fitted to the entire pool surface area. AND For indoor pools: The air temperature in the pool hall can be controlled so that it is 1°C above the water temperature. OR For outdoor pools: Wind barriers, such as fencing, rocks, or shrubbery are used to reduce evaporation.
Recreational hot tubs and hydrotherapy pools	Automatic or semi-automatic pool covers, or 'liquid' pool covers with an automatic dosing system, are fitted to entire pool surface area.
Planting and landscaping	Watering is by a controlled irrigation system that uses local weather data or soil moisture sensors. OR Reclaimed or recovered water from a rainwater collection or waste-water recovery system with appropriate storage, i.e. greywater collection from building functions or processes that use potable water, e.g. vehicle wash, sanitary facilities, irrigation etc. is used in preference to other water sources. OR External landscaping and planting that relies solely on precipitation, during all seasons of the year once the planting has been established. (See CN1)
Water features such as decorative fountains	Automatic switch off during unoccupied hours. OR Wind barriers, such as fencing, rocks, or shrubbery are used to reduce evaporation.
Vehicle wash stations	Fitted with a water recycling system. OR Uses rainwater or wastewater.
Cooling towers	Automatic blowdown control which regulates when blowdown is discharged. OR Fitted with a windbreak, floating covers, or other types of enclosure.
Systems that use water for cooling or heating	Uses a closed loop water circulation system.  Combined washing and drying that does not use potable water for the drying cycle

## Methodology

### M1: Scope of non-sanitary water-using systems and equipment

The scope of this issue includes water-using systems and equipment within the curtilage of the building that are not assessed under Wat 01 Water consumption.

This includes, but is not limited to:

- Swimming pools
- Recreational hot tubs and hydrotherapy pools
- External planting
- Water features
- Vehicle wash stations
- Cooling towers
- Systems that use water for cooling or heating, including combined washing and drying machines
- Other systems and water-using components with an estimated water consumption of 1000 litres per year or more.

Unless one or more of the following conditions apply:

- They are part of an industrial process.
- They provide temporary services.
- They are only used when maintenance work is being carried out.
- They are only used in an emergency.
- There are overriding safety, security or accessibility requirements that prevent water efficiency criteria being met by any relevant compliance routes.

Water-using systems and equipment for non-sanitary water uses may be excluded from the assessment where the additional cost of procuring water efficient systems or equipment is expected to exceed the cost savings from reduced water consumption over the lifetime of the system or equipment. This is more likely to be the case for items with low annual water consumption.

### M2: Estimating non-sanitary water used by in-scope systems and equipment

Water consumption estimates may be derived from engineering calculations, data for similar projects, benchmarks or other approximate estimation methods.

For example, a simple engineering calculation for a swimming pool might take account of the surface area of the pool and the evaporation rate, which will be determined by the difference between the water temperature and the air temperature and the ventilation rate.

Typical values for water usage can also be obtained from IVL's report with instructions for calculating LCA for construction projects "Anvisningar för LCA-beräkning av byggprojekt"

At the preassessment stage, the number of credits available may be estimated by entering a rough estimate of the total water consumption for all in-scope systems and equipment. This must be replaced by estimates of the water consumption for each system or item of equipment before the assessment is submitted.

### M3: Determining the number of credits available

The methodology for calculating annual water consumption for in-scope non-sanitary water-using equipment and systems is described in M2.

Where predicted water consumption calculations have been undertaken, the annual sanitary water consumption should be calculated in accordance with Wat 01.

The ratio of in-scope non-sanitary to sanitary water consumption is calculated as:

$$\frac{\text{total annual non-sanitary water consumption for all in-scope systems and equipment}}{\text{annual water consumption for sanitary water use}} \times 100\%$$

This used to determine the number of credits available according to Table 67.

### M4: Demonstrating water efficiency

There are two routes for determining whether an item of equipment or system is water efficient:

- 1 Where the equipment or systems are more water efficient than that of a standard version of the equipment or system. See M4.1. OR
- 2 Where the equipment or system meets specific "deemed to comply" water efficiency requirements. See M4.2.

Deemed to comply water efficiency requirements are only provided for some types of systems and equipment. Where deemed to comply requirements exist, the water efficiency compared to a standard version of the system or equipment may be used to demonstrate compliance with this issue.

#### **M4.1: Demonstrating water efficiency compared to a standard version of the system or equipment**

The reduction in water consumption must be calculated based on the expected annual water consumption for the actual system or item of equipment compared to annual water consumption of a standard system or item of equipment. In both instances, the system or item of equipment must meet the same water service demand.

A standard item of equipment is defined as having a water efficiency that is typical for that type of equipment. This means that it has:

- Water-using components with water efficiency that is typical for the component types.
- Water efficient features and controls that are typical for the system type.
- Not been designed to optimise water consumption.

The performance of a standard version of a system or equipment type might be determined based on a non-exhaustive search for systems or products of the same type.

To demonstrate that the actual equipment or system procured is more water efficient than the standard version, show that the performance of the actual equipment or system achieves a meaningful reduction in water consumption compared to the standard version.

Where technical data on both the actual and standard version of the system is readily available, this should be used to calculate the percentage reduction in water consumption. This calculation, alongside justification for both the selection of the standard product and the acceptance of the achieved percentage reduction over the standard product as meaningful, should be provided in each case to demonstrate that a given system is water efficient.

Note: The percentage reduction in water consumption does not impact the number of credits awarded.

#### **M4.2: Deemed to comply requirements for water-using systems and equipment**

Deemed to comply requirements for specific non-sanitary water-using systems and equipment are listed in Table 69.

### **M5: Determining the number of credits achieved**

The total annual water consumption of in-scope equipment is determined based on the estimated water data entered in the BGO platform, as described in M2.

Where equipment is demonstrated to be water efficient in accordance with M4, this should be indicated in the BGO Platform.

The number of credits achieved is calculated in the BGO platform as follows:

$$\frac{\text{Total annual non-sanitary water consumption by in-scope systems and equipment that is water efficient}}{\text{Total annual non-sanitary water consumption by in-scope systems and equipment}} \times \text{number of credits available}$$

## Compliance notes

Reference	Terms	Description
CN1	Temporary irrigation systems	Temporary watering arrangements set up purely to allow plant species or a green roof to establish are acceptable for plants relying on natural precipitation during all seasons of the year. Where this is the case, the ecologist's report must confirm the plant species and the expected time for recommended plant species to establish themselves i.e. time period for temporary watering arrangements.
CN2	Manual watering	Where the design team can justify that manual watering provides a reduction in unregulated water consumption, this can be considered as an acceptable method for reducing unregulated water use.
CN3	Swedish best practise	The Swedish best practise for microbial contamination is Säker vatteninstallation
CN4	Combined washing and drying machines	The washing cycle is assessed in wat 01 since it is for sanitary use. The dryer cycle sometimes use water as a cooling system, and is therefore assessed in wat 04.

## Evidence

Criteria	Interim design stage	Final post-construction stage
<b>Water efficient equipment and systems</b>		
1	<u>Design drawings, relevant sections of the building specification, schedules or other documentary evidence identifying all watersystems are designed according to Swedish best practise.</u>	<u>Written confirmation that all watersystems are installed according to Swedish best practise.</u>
2	Routines in place to minimise the risk for microbial contamination during operation	Routines in place to minimise the risk for microbial contamination during operation
3-4	Design drawings, relevant sections of the building specification, schedules or other documentary evidence identifying all water demands from uses other than domestic scale drinking and sanitary use components.  Where items with low annual water consumptions have been excluded from the scope due to the cost of replacement, this must be stated and justified.	Final construction drawings or equivalent, assessor site inspection report and photographic evidence or other documentary evidence to verify all water demands from uses other than domestic scale drinking and sanitary use components. that have been installed.  Where items with low annual water consumptions have been excluded from the scope due to the cost of replacement, this must be stated and justified.
5	Calculations and data sources used to demonstrate the estimated annual water consumption of systems and equipment, as per M2 and M3.	Final calculations and data sources used to demonstrate the estimated annual water consumption of installed systems and equipment, as per M2 and M3.

Criteria	Interim design stage	Final post-construction stage
6-7	<p>Where compliance demonstrated by comparison to a standard version of the system or equipment, acceptable evidence sources include:</p> <ul style="list-style-type: none"> <li>• Written justification for the selection and benchmarking of the standard product based on reasonable assumptions or basic market research.</li> <li>• Specific clauses from reports or manufacturer’s literature relating to the water consumption of the actual product.</li> <li>• Specific clauses from reports or manufacturer’s literature relating to the water consumption of the standard product.</li> </ul> <p>Plus: Where available, calculations showing that the actual product is more water efficient than the standard product. Where a percentage reduction in water consumption has been accepted as signifying a meaningful reduction in water efficiency, then this should be stated and justified.</p> <p>Where this is demonstrated by meeting the deemed to comply requirements within Table 69, acceptable sources of evidence include:</p> <ul style="list-style-type: none"> <li>• Relevant sections of the building specification, systems or equipment schedules or contract clauses.</li> <li>• Where products are specified, manufacturer’s product details confirming they meet the deemed to comply requirements.</li> </ul>	<p>Where compliance demonstrated by comparison to a standard version of the system or equipment, acceptable evidence sources include:</p> <ul style="list-style-type: none"> <li>• Manufacturer’ literature relating to the water consumption of the actual installed systems or equipment</li> <li>• Final construction drawings/equipment schedules or equivalent, assessor site inspection report and photographic evidence or proof of purchase to verify installed systems or equipment.</li> </ul> <p>Plus Calculations showing that the actual product has a lower water consumption than the standard product. Where a percentage reduction in water consumption has been accepted as signifying a meaningful reduction in water efficiency, then this should be stated and justified.</p> <p>Where compliance is demonstrated by meeting the deemed to comply water labelling schemes and lists, acceptable evidence sources include:</p> <ul style="list-style-type: none"> <li>• Final construction drawings/ equipment schedules or equivalent, assessor site inspection report and photographic evidence or proof of purchase to verify installed systems or equipment.</li> <li>• Manufacturer's literature showing the equipment includes the deemed to comply requirements.</li> </ul>

## Definitions

### Curtilage

The land surrounding a building that a developer or owner is responsible for.

### Operational water consumption

This includes both sanitary and non-sanitary water uses.

### **Non-sanitary water uses**

All operational water uses within the curtilage of the building except for:

- WCs/toilets
- Urinals
- Taps/faucets (on wash-hand basins, kitchen sinks, and waste disposal units)
- Showers
- Baths
- Dishwashers (domestic and commercial-sized)
- Washing machines (domestic and commercial sized).

### **Vehicle wash station**

A commercial-scale automatic, semi-automatic, or manual system for washing vehicles. This includes wheel and chassis wash, fixed gantry and screen wash systems using brushes, spray or handheld jet hoses.

## **Additional information**

None.