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ecoplay

INNOVATION IN WATER RECYCLING

cme
Sanitary Systems

As the twenty first century progresses, water is becoming one of the biggest political and ecological issues of our age.

Quite simply, there isn't enough to sustain the needs of a growing world population.

And while it's tempting to see drought and dwindling water supplies as problems exclusive to under developed countries, drier summers and climate change are affecting us all. In fact, people living in the South East of England now have less available water per person per day than those in countries such as Sudan and Syria (source: Waterwise). Neither is it a problem that's going to go away in the near future. The Government is already committed to building nearly a quarter of a million new houses each year by 2016 to accommodate a UK population that's set to reach 77m people by 2060 (source: IT Facts).

Water availability

Overall UK annual water availability:
2,724m³ per person

Thames Valley annual water availability:
Just 266 m³ per person which is less than Cyprus (628m³ per person*)

We also have less water available per person than:

Italy	3,020 m³/annum
France	3,329 m³/annum
Turkey	3,418 m³/annum
Portugal	7,341 m³/annum

Every one of which will need to be supplied with clean, potable water.

*Source: European Environmental Agency.

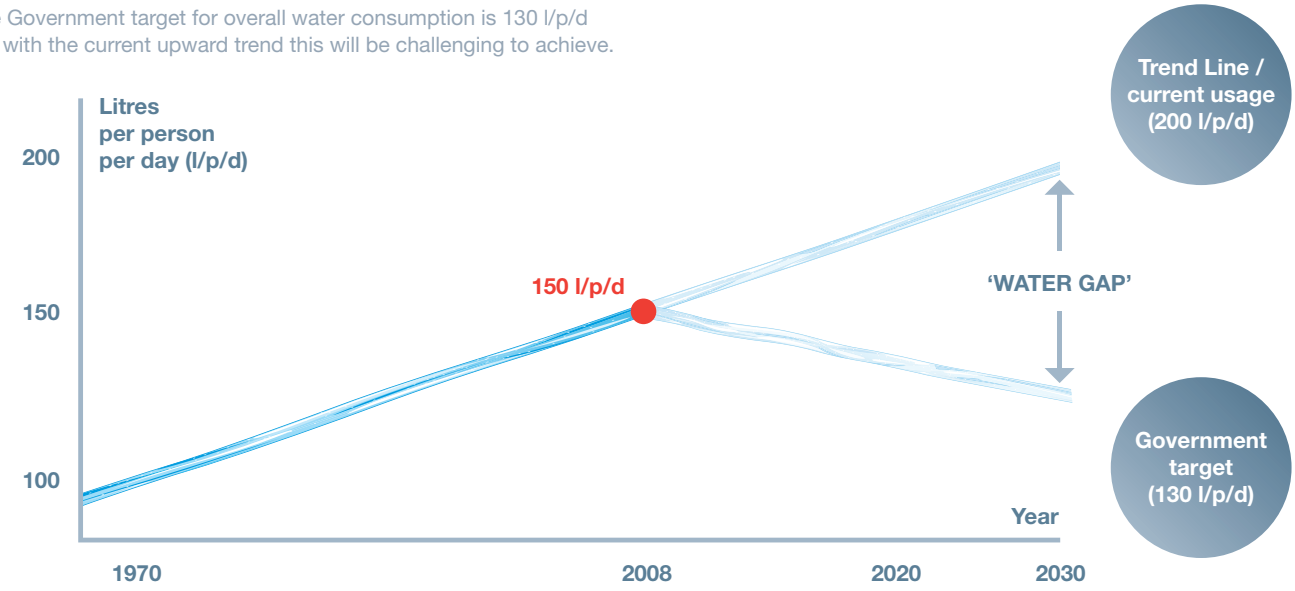
GOVERNMENT STRATEGY

With approx 50% of all UK water being consumed in the home, the Government have recognised that their strategic response should focus on new dwellings, in particular at design stage where a range of measures can be considered to reduce water consumption. In addition to increased metering and a reduction in leakage rates, the Code for Sustainable Homes became mandatory on May 1st 2008 to help ease the growing demand on water resources in UK households.

WHERE DOES OUR WATER GO?
Source: Waterwise UK

Government response: The water challenge

The Government target for overall water consumption is 130 l/p/d but with the current upward trend this will be challenging to achieve.



Source: CPD 'Water Efficiency' in new dwellings.

The Code for Sustainable Homes

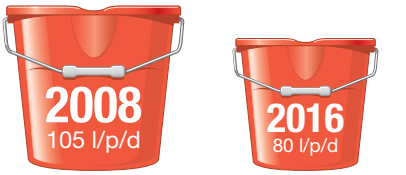
The Code for Sustainable Homes is based on a 'whole house' rating system covering 9 separate areas in which new homes must meet minimum standards for sustainability. In each of these areas the developer can achieve credits. The credits are then converted to points which make up an overall energy scoring.

Since May 1st 2008, all government-financed developments, including Housing Association homes, have had to meet Code levels 3 and 4 for water usage. In other words, a consumption not exceeding 105 litres per person per day.

Even more challenging for homebuilders, the target by 2016 is no more than 80 litres per person per day.

Clearly, the key to driving water efficiency is based on reducing waste and not restricting use.

So increasingly, the onus is falling on designers, specifiers and builders to find other ways of making more efficient use of water supplies, such as low-flow systems, rainwater capture and, most promising of all, 'greywater' management.



CODE LEVELS 3 & 4 **CODE LEVELS 5 & 6**

Government targets for new build dwellings

Water consumption (litres/person/day)	Credits	Mandatory Levels
120	1	1 and 2
110	2	
105	**3**	**3 and 4***
90	4	
80	5	5 and 6

*Now mandatory for government financed developments including Housing Associations.

BREEAM

BREEAM assesses buildings against a set of criteria and provides an overall score which will fall within a band providing either a PASS, GOOD, VERY GOOD, EXCELLENT or OUTSTANDING rating. BREEAM is applied across the building spectrum through various packaged forms, created to suit individual types of buildings - for example, common types of buildings can be measured under packages including BREEAM Education, BREEAM Offices, BREEAM Prisons etc.

The original BREEAM Eco-homes was created to tackle domestic homes. In April 2007 the Code for Sustainable Homes replaced Eco-Homes for the assessment of new housing in England. Eco-homes 2006 will continue to be used in refurbished housing in England and for all new housing in Scotland.

In terms of water efficiency, BREEAM credits are awarded where the following measures are in place:

- Water efficient appliances (e.g. low flush toilets)
- Water metering
- Leak detection systems
- Water butts

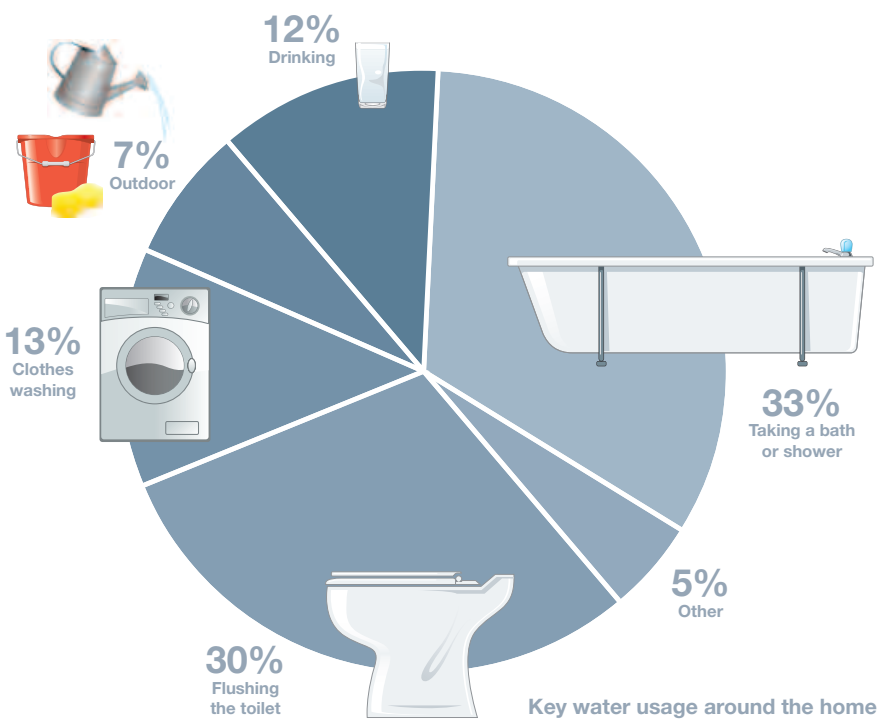
Part G Building Regulations

From 2010, Building Regulations Part G will permit the use of non-wholesome water for applications where it is unnecessary for water to be treated to the high standard as that required for drinking purposes. In the average household, greywater is usually readily available in sufficient quantity to meet the daily requirement for WC flushing and so is an obvious choice to use for this purpose. Document G proposals advocate that greywater systems should minimise retention time, by having a facility to dispose of greywater to limit the length of storage time or to empty the system in the event that maintenance needs to be carried out. Automated facilities for routinely emptying the system should be employed where practical. Ecoplay recognises when stored water is of a certain age and will automatically dispose of it when the need arises. In the event of maintenance being required, the system may be purged manually by operating a small push button. Document G also directs attention to the marking of pipework from unwholesome sources. Whilst this is designed to prevent contamination of wholesome water supplies, Ecoplay goes one step further by using an ingenious “safe tube” to convey grey water from the main installation, through the property, to the second WC. If disconnected or if modification is attempted, the “safe tube” will cause the system to shut down until the problem has been rectified and the system reset.

WATER CONSUMPTION PATTERNS

A look at the usage of water in the average home tells us one striking thing; most of it goes down the plughole or down the toilet.

While the water supplied to every UK home is wholesome, only 4% of it is actually used for drinking and cooking. A staggering 30% is used for flushing the toilet. And a further 33% for showering and bathing.



Key water usage around the home

There are several water saving technologies available to the designer of new dwellings, typically centred on rainwater harvesting or flow restrictors. The latter compromises 'bathing comfort' due to a significant reduction in water flow, whereas the former requires high volumes of rainwater which cannot always be guaranteed.

Assessment of water reduction tools available to designers of new homes

Technology	Feature / benefit: Water comfort	Flexibility	Household drainage reduction	Ease of access	Ease of installation	Low maintenance
Flow restrictors		●	●	●	●	●
Rainwater systems	●					
Traditional greywater systems	●		●			
Ecoplay	●	●	●	●	●	●
Centralised greywater systems	●		●			

Greywater recycling offers the possibility of capturing waste water from the bath and shower and reusing it to reduce overall water consumption levels in the home. Specifically, in the case of the Ecoplay system, reusing it to flush the toilet.


Picture courtesy of Dornbracht (UK)

Ecoplay is a clever, low maintenance greywater solution, capable of radically reducing household water consumption.

The concept behind Ecoplay is a simple one; instead of allowing all the water from the bath or shower to drain away, why not re-use it to flush the toilet?

By diverting bathing or showering water to the Ecoplay system where it is treated and stored, Ecoplay can reduce water consumption and drainage loads in the average home by as much as 30%.

Better still, it can offer a simple way of achieving a Code level 3 and 4 pass without any other modifications to existing supply systems or appliances - even with today's trend for high flow devices like power showers.

Recognition for Ecoplay

Since its launch, Ecoplay has won several major awards for design and its contribution to the environment. It has also has received extensive coverage in the press:

THE ECOPLAY SYSTEM AND HOW IT WORKS

Greywater supply with integral greywater sensor

Wholesome water supply with Type AB air gap

Cleaning Tank with connection to WC cistern (and pump when specified)

Storage Tank

Overflow (connected to Waste Pipe) with integral greywater sensor

Ecoplay Control Unit or ECU

Dosing unit

Flushplate
(see page 11 for options)

WC Cistern

Safe Tube when specified for second toilet (max length 7.5 metres)

Mains voltage pump when specified for second toilet

Ecoplay accommodates British Standard Back-to-Wall and Wall Hung WC's

Waste Pipe
(connects to soil vent pipe)

Note: Pan not included

Principle of operation

Bath and shower water is directed to the greywater input and a sensor signals to the Ecoplay Control Unit or ECU that water is being fed into the Cleaning Tank. A managed volume of an environmentally friendly disinfectant is injected into the incoming flow of water. Light surface debris such as foam, hair and soap are removed by skimming, whilst heavier particles sink and are flushed away to waste. When the Cleaning Tank is full, excess greywater is allowed to run momentarily through the overflow to waste. This permits the integral sensor to signal the ECU to allow the Storage Tank to vent. Cleaned greywater then flows from the Cleaning Tank into the Storage Tank and is transferred to the WC cistern through a flexible connection. A second connection from the Cleaning Tank allows greywater to be directed to an onboard pump which then transfers it to a second WC cistern where specified.

If greywater remains unused in the system for any longer than 24 hours, an automatic purging event takes place. This is facilitated by a valve arrangement in the Cleaning Tank and cistern mounted electronic flushing mechanisms, which are controlled by the ECU and allow water to be flushed from the WC cistern(s). Sufficient wholesome water is then allowed to enter the system to replenish the cisterns and sump of the WC pan(s). For the user, Ecoplay works in the same way as a conventional WC by pressing the appropriate button on the flushplate to flush.

In the event of contaminated water inadvertently entering the equipment, the whole system may be manually purged by simply pressing a button which is discreetly hidden away behind a removable flushplate.

Ecoplay Dosing

Water is supplied in a number of ways throughout the world from desalination in the Middle East, Rainwater collection in Gibraltar, to surface and ground water supply in mainland Europe and the UK, all of which have a variety of treatments and quality before reaching the home.

It is because of these variants that some regions have higher levels of bacteria in their water and once used for bathing can in some cases when left for a period of time produce unpleasant odors. The safest and most efficient way of ensuring this doesn't occur is to add an environmentally friendly disinfectant agent.

Ecoplay incorporates an integral dosing unit which is managed by the ECU and delivers a prescribed shot of disinfectant to the incoming greywater supply. Because the system holds a maximum of 100 litres the ECU recognizes and delivers the correct measure at all times.

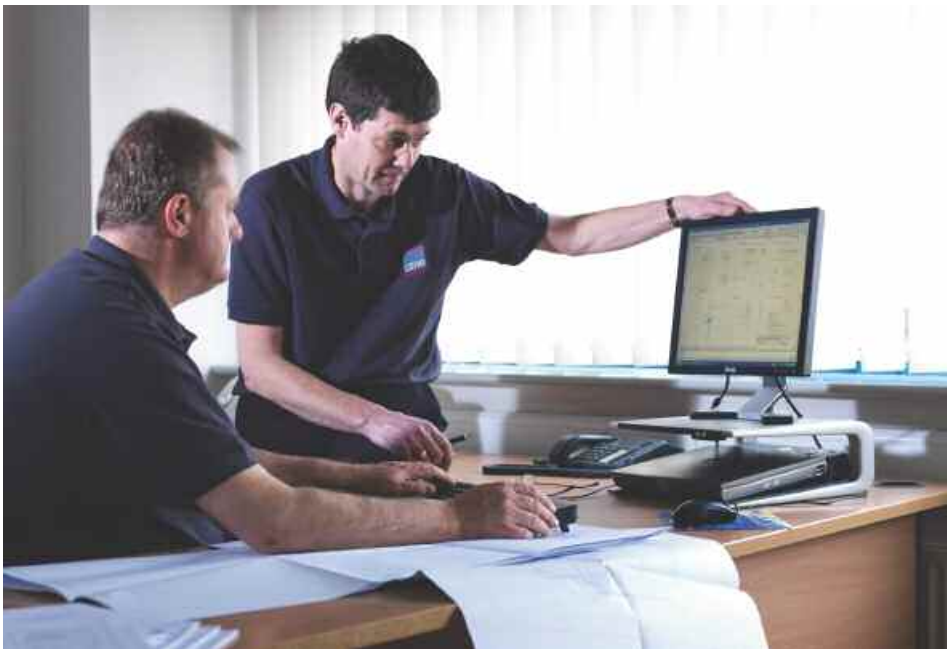
The environmentally friendly disinfectant is dosed into the greywater creating a 10 ppm solution neutralising any bacteria that could potentially cause a smell, leaving the toilet smelling fresh and clean. Benzalkomium chloride is better know for its use in antibacterial hand cleaners, fish ponds and cosmetics and a 5 litre container will last in excess of 12 months before replacement.

Safe Tube

The Safe Tube is a multi-layered pipe that connects the low voltage pump which transfers the recycled greywater from the main Ecoplay unit to the second WC.

The Safe Tube is a patented tamper-proof safety device; The pipe has a plastic outer coating and aluminium inner and needs to be crimped to secure the connection. The outer layer acts as insulation and is removed at either end of the pipe exposing the aluminium. Two electrical connections are then made between the two ends and a low current is then passed through the Safe Tube registering a resistance with the ECU if any attempt is made to break into this pipe. The ECU will recognise the change in resistance and produce an audible warning and shut down the system.

For Developers, Architects and Housing Associations.



- **Compact, lightweight and easy to install**
  With the system supplied in a pre-assembled modular arrangement, Ecoplay requires minimal additional site work when carried out by an approved Ecoplay installer.
- **Retro-fit or new installation compatible**
  Ecoplay is suitable for new build or refurbishment projects.
- **Technical support**
  Full CAD drawings are available as well as our technical support staff to render advice on specification to installation and commissioning.
- **A proven solution to meet levels 3 and 4 CfSH and higher**
  By saving on the water for WC flushing, Ecoplay can achieve the mandatory threshold levels 3 & 4 without compromising flow rates and bathing comfort.
- **Low maintenance**
  Once installed, Ecoplay operates just like a normal toilet. When the building occupant is away for 24 hours or more, the system will automatically purge the stored greywater and refresh the system using mains water. An automatic dosing system disinfects the greywater as it enters the Ecoplay unit. A 5 litre container will provide over 12 months supply before replacement is required.
- **Environmentally sound**
  Recognising the need to offer environmental benefits, the Ecoplay system carries the prestigious Waterwise mark as well as winning the building services Green Product of the Year award reinforcing the water saving benefits it can achieve. Likewise, international recognition for environmental benefits of Ecoplay is further reinforced through winning the Silver GAIA Award in 2008.
- **Safe Tube**
  For added piece of mind a safe tube is fitted to prevent greywater contaminating the wholesome water system.
- **Guarantee**
  Ecoplay is covered by a two year manufacturers guarantee (subject to terms and conditions available upon request). This does not affect your statutory rights.

The versatility of the Ecoplay system makes it the ideal choice for most building types and installations.

For the Tenant and Homeowner.

- **Reduced water bills**
  Through the re-use of the bath or shower water, Ecoplay can reduce mains water consumption and drainage by up to 30%.
- **No compromise on flow rates of bathing water**
  Unlike many typical water saving devices which feature flow restrictors to taps and showers, Ecoplay saves water whilst maintaining flow rates; Comfort without compromise.
- **Conventional toilet operation**
  When installed, Ecoplay operates and looks like a contemporary toilet, working with both wall hung and back-to-wall WC's.
- **Low maintenance**
  Ecoplay functions automatically with only an annual replacement of disinfectant and basic bathroom hygiene.
- **Takes up no additional usable space**
  With the system supplied in a pre-assembled modular arrangement, Ecoplay requires minimal additional site work when carried out by an approved Ecoplay installer.
- **Quiet operation**
  Ecoplay, when in operation, is similar to a conventional toilet.
- **Wall-hung or back to wall fitting option**
  The Ecoplay system frame is suitable for use with compatible back to wall or wall hung WC pans to create that perfect bathroom finish.
- **Safe Tube**
  For added piece of mind a safe tube is fitted to prevent grey water contaminating the fresh water system.
- **Guarantee**
  Ecoplay is covered by a two year manufacturers guarantee (subject to terms and conditions available upon request). This does not affect your statutory rights.

PUSH PLATE OPTIONS

Different push plate options are available at extra cost to individualise your bathroom and create that desired look. Dual flush options further ensure that flushing is optimised with the amount of water used.

Ambia *

Product code 9.240.226
Chrome
(supplied standard with system)

Product code 9.240.240
White Anti-bacterial

Ambia push plates in dual flush are available in white, chrome and anti-bacterial finishes. Their compactness ensures that they fit harmoniously in every bathroom environment. The anti-bacterial version is ideally suited for public sanitary areas promoting better WC hygiene.

Planus - Anti Vandal

Product code 9.240.320
Dual Flush Brushed
Stainless Steel

Planus stainless steel provides robustness and vandal proof in an elegant design. The plates are secured against theft using a concealed screw and so are suitable for both domestic and commercial areas.

Loop

Product code 9.240.657
Black

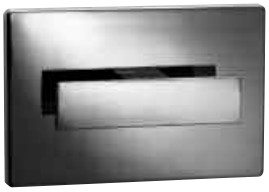
Product code 9.240.660
White/Chrome buttons

Product code 9.240.652
Green

Product code 9.240.650
White/White buttons

Loop high quality genuine glass surface available in different colours providing versatility. The ideal choice to create a perfect bathroom.

Designer



Designer collection provides flush handles with upmarket bathroom design in mind. For further information concerning our designer range please contact CME Sanitary Systems Limited.

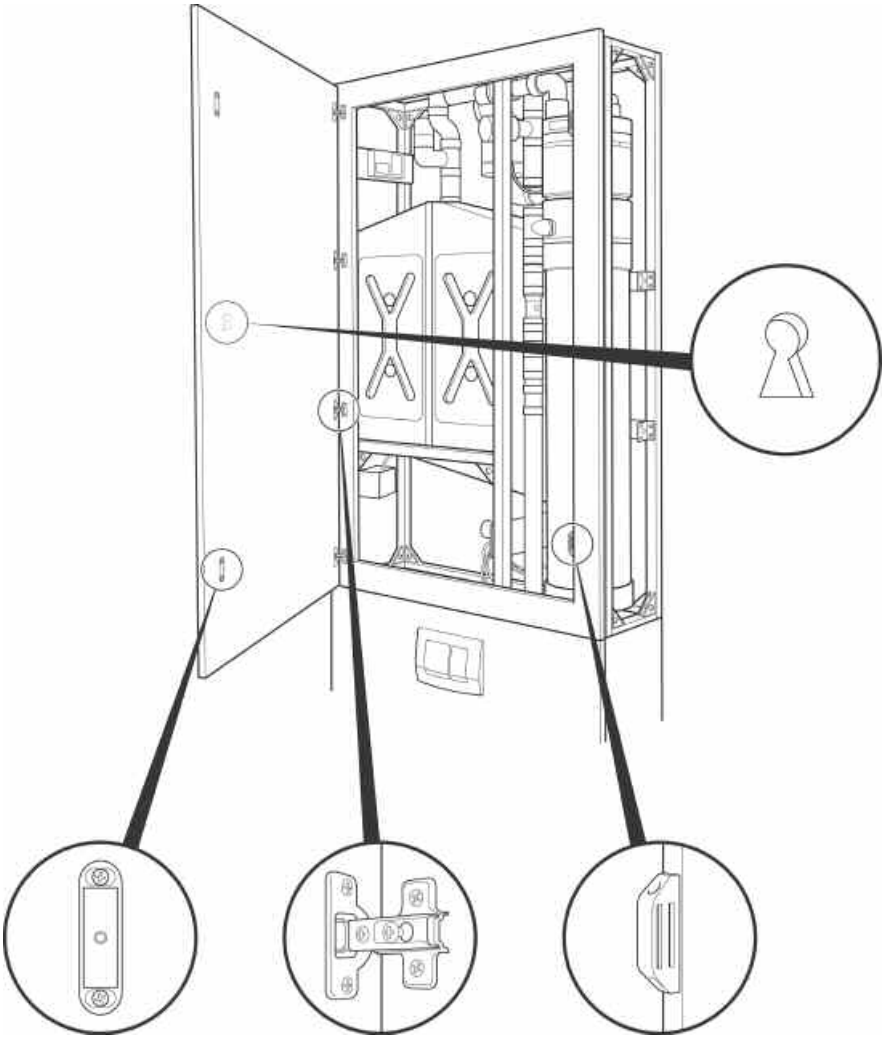
***Coloured option available for the partially sighted.**

Building in

Access to the top box section of Ecoplay must be provided. Whilst Ecoplay is designed to require only minimal maintenance, access is required for periodic inspection and disinfectant replacement which we recommend, and is necessary should any components need replacement. The warranty will be invalid if proper access is not provided.

We recommend using a construction similar to that shown. This example lends itself to being finished in a variety of ways. However, care must be taken to ensure that the strength and quantity of the hinges and fixings chosen, are compatible with the weight of the door and particularly so, where a covering with mirror glass or tiling is specified. Other designs and methods of cladding are acceptable, provided correct access is made available.

CME Sanitary Systems does not provide cladding solutions, but please contact our sales office if you would like us to provide you with details of a supplier.

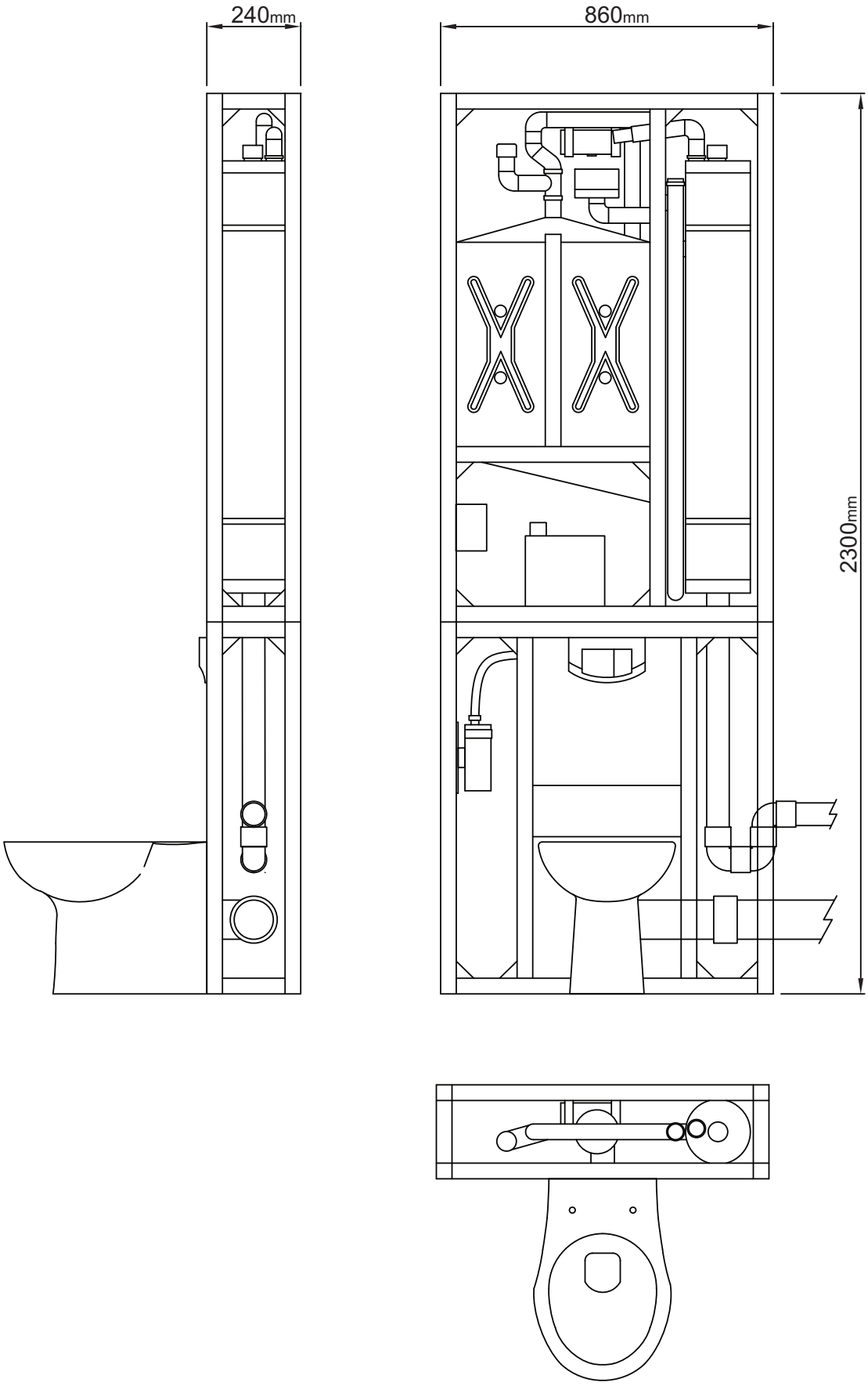


For cladding the Ecoplay unit, different finishing options can be employed to match the bathroom or cloakroom finish desired whilst providing access to the upper part of the unit for system maintenance.

Note: Minimum opening required inside the frame is 720mm wide x 1,200mm high.

Secure fastening can be added if required.

CAD drawings are also available from the Ecoplay website: www.cmesansys.com


240mm
860mm
2300mm

System weights (kg)	Single toilet version (ECOB1121)	Two toilet version (ECOB22P)
Complete unit no water	62kg	84kg
Complete unit full of water	164kg	196kg
Top box section no water	40kg	40kg
Bottom box section no water	22kg	44kg
Top box section full of water	132kg	132kg
Bottom box section cistern full of water only	32kg	64kg
Sound level (dB)		
Maximum sound emitted from Ecoplay without cladding is less than normal toilet flush	<70dB	<70dB
Ecoplay distribution pump		
Standard model with 1 pump (where applicable) supplied with 7.5m safe connection tube	/	3.5m head
Special models with 2 pumps consult with CME regarding length of safe connection tube	/	7m head
Energy use and consumption (Kilowatt hours per year)		
ECU	13.1	13.1
Pump option 1 (based on 10 uses of second WC per day)	/	3.0
Storage		
Storage capacity	92 litres max	92 litres max
Including cisterns	98 litres max	114 litres max
Performance		
Typical number of uses - full storage (single flush)	15 approx	15 approx
Typical number of uses - full storage (dual flush)*	20 approx	20 approx
Dosing agent/disinfectant		
Benzalkonium chloride solution (safety data sheet available upon request)	5 litres	5 litres
Standards		
BSI are currently developing; BS8525 Part 1 Greywater Systems Code of Practice for Installation BS8525 Part 2 Greywater Systems Specification for Type Testing A type AB air gap arrangement is used to protect the mains water supply used for topping up purposes from contamination.		

* based on effective flush volume of 4.67 litres per flush derived from 2:1 dual flushing ratio

SPECIAL CONSIDERATION FOR SINGLE FLOOR INSTALLATIONS

Where shower or bathing water needs to be pumped into Ecoplay, such as single floor installations, it will be necessary to use a suitable pump. We recommend using the following Saniflo products, Sanivite or Sanishower for this purpose. Please see the Saniflo website **www.saniflo.co.uk** or contact Saniflo for product details and advice by calling: **0208 842 0033**

Sanivite and Sanishower are registered trademarks of Sanit/Saniflo.

Note: CME do not manufacture or supply the lift pump that is necessary for certain Ecoplay installations. CME does not accept any responsibility for the performance of said pump but strongly recommends the use of a quality branded item eg. Saniflo or similar. Any recommendations about the pump made by CME should be treated as a guide only. The suitability of the pump for each installation should be checked with the manufacturer.

Use the diagrams below to decide which Ecoplay configuration best suits your requirements.

Ecoplay units should be fitted and commissioned by an approved Ecoplay installer. Ensure that the correct Ecoplay model type for a single or double toilet installation has been specified. (See options below)

FLOOR 2
FLOOR 1

Option A

Option B

Option C

FLOOR 2
FLOOR 1

Option D

Option E

Option F

NOTE: Ensure that only **waste** water from a bath and/or shower is plumbed into the Ecoplay unit. **Failure to do this will invalidate the warranty.**

CME Sanitary Systems provide the following technical support and assistance.

- **CAD drawings**
  To assist with planning and design, CME provide CAD drawings on the Ecoplay system. To access and download, please go to our website www.cmesansys.com.
- **Installation guide and support**
  Installation support is available. CME Sanitary Systems can provide a complete installation service or alternatively recommend an approved Ecoplay installer.
- **System configurations**
  The main system configurations are tabulated on page 14 in this brochure. Other opportunities are possible. Please telephone our sales office to discuss your requirements.
- **Pump options**
  When a second WC is specified, this is fed using an integral pump. If the WC facilities are located over more than 2 floors, then 2 pumps connected in series will be used to obtain the extra lift necessary. Integral pumps are included where required.
- **Troubleshooting, testing and commissioning**
  Full details on this are available in our Ecoplay installation guide. Alternatively, the relevant information is available to download from our website. To download, please go to www.cmesansys.com.
- **Code for Sustainable Homes**
  Additional guidance is available from our qualified Code Assessor.
- **CPD Seminars**
  We also offer technical seminars to ensure personnel involved in the specification and selection of products are up to date with products, industry developments and standards. To request a seminar please contact CME by calling 01302 312202.

FREQUENTLY ASKED QUESTIONS

What is the difference between greywater and rainwater?
Greywater is wastewater generated from domestic processes. As greywater originates from a mains supply it is more consistent in quality when compared to rainwater which varies in terms of its acidity and availability.

Do greywater systems offer any advantages over rainwater systems?
Yes, rainwater systems are generally expensive to buy, run and install, furthermore they don't incorporate a safe tube connection. Ecoplay is also an unobtrusive system contained within the property unlike rainwater collection systems which are visible on the outside.

Is the Ecoplay System guaranteed?
In line with NHBC requirements, the system comes with a 2 year guarantee from date of occupancy.

Is maintenance required?
The only maintenance required is an annual top up of disinfectant.

Can I install Ecoplay myself?
To ensure the system is correctly installed and for warranty validation, we only recommend installation by an Ecoplay approved installer.

Can I install Ecoplay in an existing bathroom?
Yes but the extent of the retro fit project will determine the feasibility of the installation.

If necessary can I empty the greywater from the system manually?
Yes. A purge button is conveniently located behind the removable flush plate.

Can I use rainwater in the system?
The connection of rainwater supply is not recommended and will invalidate the warranty.

Can I use water from the hand basin, sink or washing machine?
No. Ecoplay has been designed to recycle water only from baths and showers.

Can Ecoplay serve more than 2 WCs?
At this stage of development, 2 WCs are the maximum.

Does Ecoplay take up a lot of space?
Ecoplay occupies no more additional usable space than a conventional WC.

Do I need to allow access?
Yes. Access required for service and maintenance.

What colour is greywater?
The colour of the water is dependant of the type of bathroom products used.

Is Ecoplay noisy?
The noise generated by the system is no more than that of a conventional toilet flushing.

What happens during building handover?
An information pack is provided to enable the home owner to register their Ecoplay unit.

Where can I buy Ecoplay?
Ecoplay is available nationally. For a local stockist, please contact our sales office.

Ecoplay has successfully been installed in numerous projects across the UK and beyond. Below are just some examples of the applications where Ecoplay has made a positive contribution in saving water and helping to meet the Code for Sustainable Homes requirements.

David Wilson Homes - Overton

Ecoplay specified and installed in apartments for Sovereign Housing Association.

Taylor Wimpey - Milton Keynes

A development consisting of both private and affordable homes on a former brownfield site. The Ecoplay system helps meet the Code for Sustainable Homes requirements.

Leadbitter Homes - Cardiff

Development of 140 homes with 28 allocated for affordable housing. Ecoplay fitted into all affordable homes in order to obtain an Eco-Homes excellent rating.

Diadem Homes - Wimbledon

A £5.5m, seven bedroom, six bathroom family home benefitting from Ecoplay water saving technology without compromising luxury.

For details of other Ecoplay case studies please contact CME Sanitary Systems.

Case studies

The CME commitment

Choosing CME products, whether it's Ecoplay or our market leading flush systems and toilet seats, means you can be confident you'll receive a design and support service that's among the best in the industry.

With two UK production facilities and a manufacturing plant in China, we've built a reputation for reliability and innovation with OEMs, merchants, retailers and exporters alike.

All our products are fully warranted and we maintain generous stocks, including spares, to guarantee availability.

With our training programmes and installation support services, we're committed to lifelong professional development for all our customers.

Visit www.ecoplay-system.com to view our technical information or contact:

CME Sanitary Systems Limited
Warmsworth Halt Industrial Estate
Warmsworth
Doncaster DN4 9LS

Tel: 00 44 (0)844 4122029
Fax: 00 44 (0)1302 312251
Customer care / Technical info: 00 44 (0)1302 312202

The Ecoplay System can be used with a range of complementary products available from CME Sanitary Systems such as flushing push plates, as well as the Celmac toilet seat range. To view the full range of additional products visit www.cmesansys.com

The Ecoplay system is designed to recycle bath and shower water generated from normal domestic use containing only standard proprietary shampoos, shower gels, soaps and bubble bath products. The Ecoplay system is not designed for the disposal of chemicals or products not intended for normal bathing/showering activities such as paints and solvents or chemicals such as Sodium Polyacrylate which is often found in fun bath products.

Use of such substances is strictly prohibited and CME Sanitary Systems Limited accepts no liability to you if any such chemicals or products are used and the Ecoplay system is damaged or fails to work properly. In addition, use of the products will also invalidate any warranty provided with the system.

Please note the list of prohibited products is not exhaustive. If you are considering using a product but are in doubt as to whether the Ecoplay system will recycle it then please contact CME technical support on 01302 312202 and we will be happy to provide further guidance.

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All inks used in this brochure are vegetable based.

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