



# RainCell

INDUSTRIAL AND COMMERCIAL  
RAINWATER HARVESTING SYSTEMS



[www.marshindustries.co.uk](http://www.marshindustries.co.uk)



# THE MARSH BRAND HAS STOOD FOR QUALITY, PERFORMANCE AND EXCELLENT CUSTOMER SERVICE SINCE 2006

Based in Northamptonshire, England, Marsh Industries is a leading manufacturer of rainwater harvesting systems, sewage treatment plant and off-mains drainage products for both UK and overseas markets.

Marsh supplies rainwater harvesting systems for domestic, commercial and industrial applications as well as offering engineering design and technical support.

With one of the largest merchant distributor networks available in Europe, clients ask for Marsh products and services because they know the company delivers from a solid foundation of knowledge, customer support, product quality and proven performance.

Architects, specifiers and installers within the construction sectors seek alliances and partnership with Marsh because its core products and services bring further added value to their own brands.

## DESIGN, MATERIALS AND MANUFACTURING

A significant differentiator at Marsh Industries, as a privately owned company, is the ability to invest in continuous research and development programmes. This not only translates into an unrivalled range of innovative products and materials but also the depth of experience available from the company's design engineering team.

The company has also invested heavily in plant and machinery to ensure its ability to adapt to new market initiatives and trends.

With this in mind Marsh uses only the highest quality parts and materials to provide complete assurance in every aspect of product build quality. All products are fully type-tested and certified to ensure compliance with relevant environmental permitting programmes and Building Regulations.

Tanks and chambers are typically made from the following materials:

### Virgin unfilled resin (no 'fillers' such as chalk)

Provides consistent wall thickness to ensure superior structural strength and durability. This also enables the tank to be significantly lighter for on-site handling/positioning and better suited to withstand greater hydrostatic pressures when in use.

### ISO gel-coat / flo-coat

Protecting the fibres in the laminates reduces UV degradation whilst improving water and chemical resistance. This inherent integrity allows Marsh to offer an unrivalled 50 year design life, backed by a 25 year structural guarantee.

# RAINWATER HARVESTING >

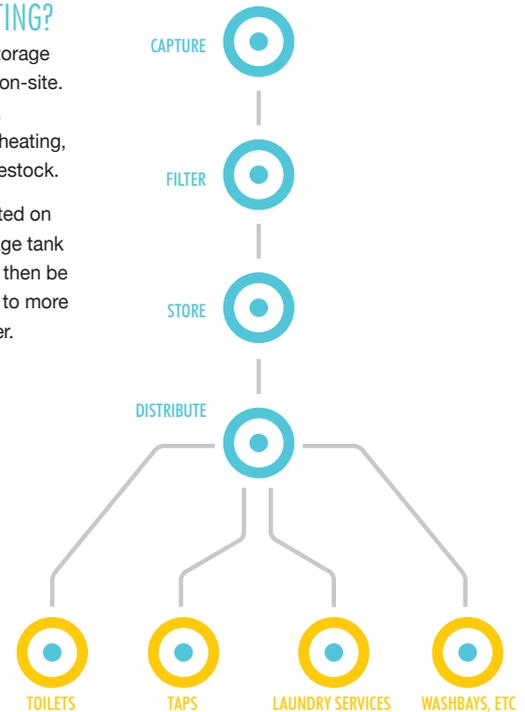
## WHAT IS RAINWATER HARVESTING?

Rainwater harvesting is the capture, storage and distribution of rainwater for reuse on-site. Its many uses include water for toilets, laundry, fire/sprinkler systems, indoor heating, vehicle washing, land irrigation and livestock.

In typical situations rainwater is collected on roof surfaces and redirected to a storage tank via filter unit. The harvested water can then be distributed to utilities as an alternative to more 'expensive' potable (drinking/tap) water.

Sites/premises which can benefit from harvesting rainwater:

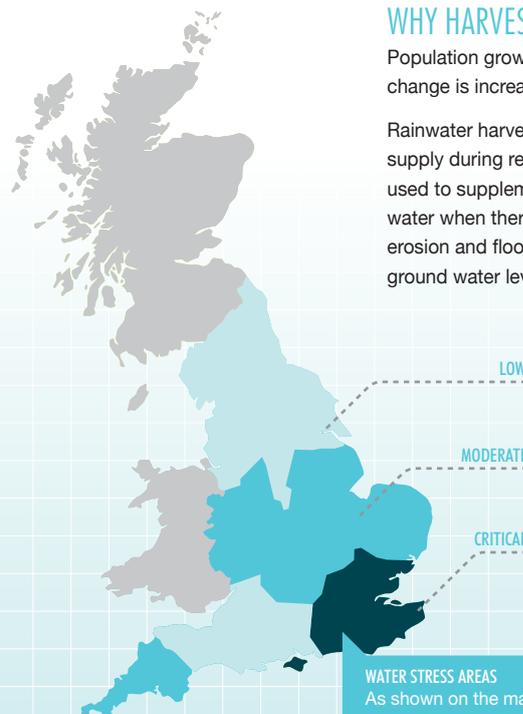
- > Office blocks
- > Industrial units and warehouses
- > Transport depots
- > Large domestic properties
- > Apartment blocks
- > Residential care homes
- > Leisure sites
- > Schools
- > Hospitals
- > Visitor centres
- > Agricultural sites



## WHY HARVEST RAINWATER?

Population growth, rising consumption and climate change is increasing the demand for mains water.

Rainwater harvesting provides an independent water supply during regional water restrictions and is often used to supplement the mains supply – it provides water when there is drought, can help mitigate soil erosion and flooding of low-lying areas, and enables ground water levels to be sustained.



### WATER STRESS AREAS

As shown on the map, the south of the country is most susceptible to water shortage in relation to population. As these areas become more densely populated, the demands on existing water supplies continues to increase at a rate that is unsustainable. The most effective solution to this is the widespread use of rainwater harvesting.



## RAINWATER IS A FREE NATURAL RESOURCE

It is naturally better than mains water as it has a balanced pH and is free of chemicals such as chlorine, meaning that it is ideal for garden irrigation, vehicle washdown and laundry services.

## > THE BENEFITS

### SAVE ON RISING WATER COSTS

It is estimated that up to 85% of mains water delivered to commercial applications is used for toilet flushing, urinal flushing and other non-potable uses. All of this can be provided by recycled rainwater resulting in reduced bills for water supply and associated waste water disposal.



### IS HARVESTING RAINWATER WORTH IT?

Yes. As well as the practical and ecological benefits given here, it is wise to bear in mind that commercial rainwater harvesting is a complex area with no quick and easy off-the-shelf solutions. Therefore every Marsh RainCell system is tailor-made to suit individual site requirements and, in association with other water efficiency measures, maximises cost-effectiveness to ensure that system payback can be achieved as quickly as possible.



### REDUCE YOUR CARBON FOOTPRINT

Mains water is pumped long distances and heavily treated to make it potable. Up to 85% of mains water in commercial applications does not need to be potable, thus harvesting rainwater for reuse at source has a lower carbon footprint.



### COMPLIANCE WITH LEGISLATION AND ENVIRONMENTAL INITIATIVES

Specifying a Marsh rainwater harvesting system enables conformity with current legislation and initiatives for water conservation in domestic and commercial buildings:

#### BRITISH STANDARD BS 8515:2009 PARTS 1 & 2

British Standard BS 8515:2009 gives guidance on the design, installation, testing and maintenance of rainwater harvesting systems for applications including laundry, WC flushing and garden irrigation.

#### THE CODE FOR SUSTAINABLE HOMES

The Code for Sustainable Homes sets targets for reducing the consumption of potable mains water from the current average level of 150 litres per person per day, to 80 litres. Code credits are awarded on a graded scale, from 1 to 6 (6 being best of all).

#### BREEAM

The Building Research Establishment Environmental Assessment Method (BREEAM) is recognised as the standard measure of sustainable building design. It covers environmental and sustainability issues and enables developers to prove the environmental credentials of their buildings to planners and clients.

#### SUSTAINABLE DRAINAGE SYSTEMS (SuDS)

Environmental policy to address the issues of both quantity and quality of water run-off from sites. Attenuation and harvesting form an integral part of schemes to counter the potential problems of increased volumes which can lead flash floods.

# RainCell

INNOVATIVE, RELIABLE, COST EFFECTIVE >

The Marsh Raincell is the simplest, most reliable and cost effective rainwater harvesting system on the market.

With storage capacities to accommodate most roof sizes the Raincell system effectively stores and distributes clean recycled rainwater to properties allowing end-users to save on their metered water costs whilst helping architects, civil engineers and contractors conform to current environmental and legislative standards.

## SYSTEM OPTIONS

### RainCell X50

For light industrial/commercial applications where space is limited or mains water top-up has been specified.

### RainCell 75H

Ideal for plant rooms or where a break tank system has been specified.

See page 4 for full system specifications

## TANK SIZING

Choosing the optimum tank size is a balance between the ability to collect rainwater and your usage, the preferable capacity normally being chosen on usage as there's no point collecting water if you're not going to use it.

Also, and unlike most other tank applications, it is better to undersize the capacity of the tank rather than oversize as this has the benefit of allowing the tank to overflow (ideally at least twice a year) to flush out any floating debris.

For assistance with sizing and system specification, please contact Marsh Industries. Our useful 'Talk to the Experts' flowchart on page 5 shows several of the key questions you need to answer when specifying a rainwater harvesting system.

## DELIVERY OPTIONS

Historically rainwater harvesting installations have been plagued by damaged or lost parts when nearing completion. To avoid this Marsh offers two delivery options:

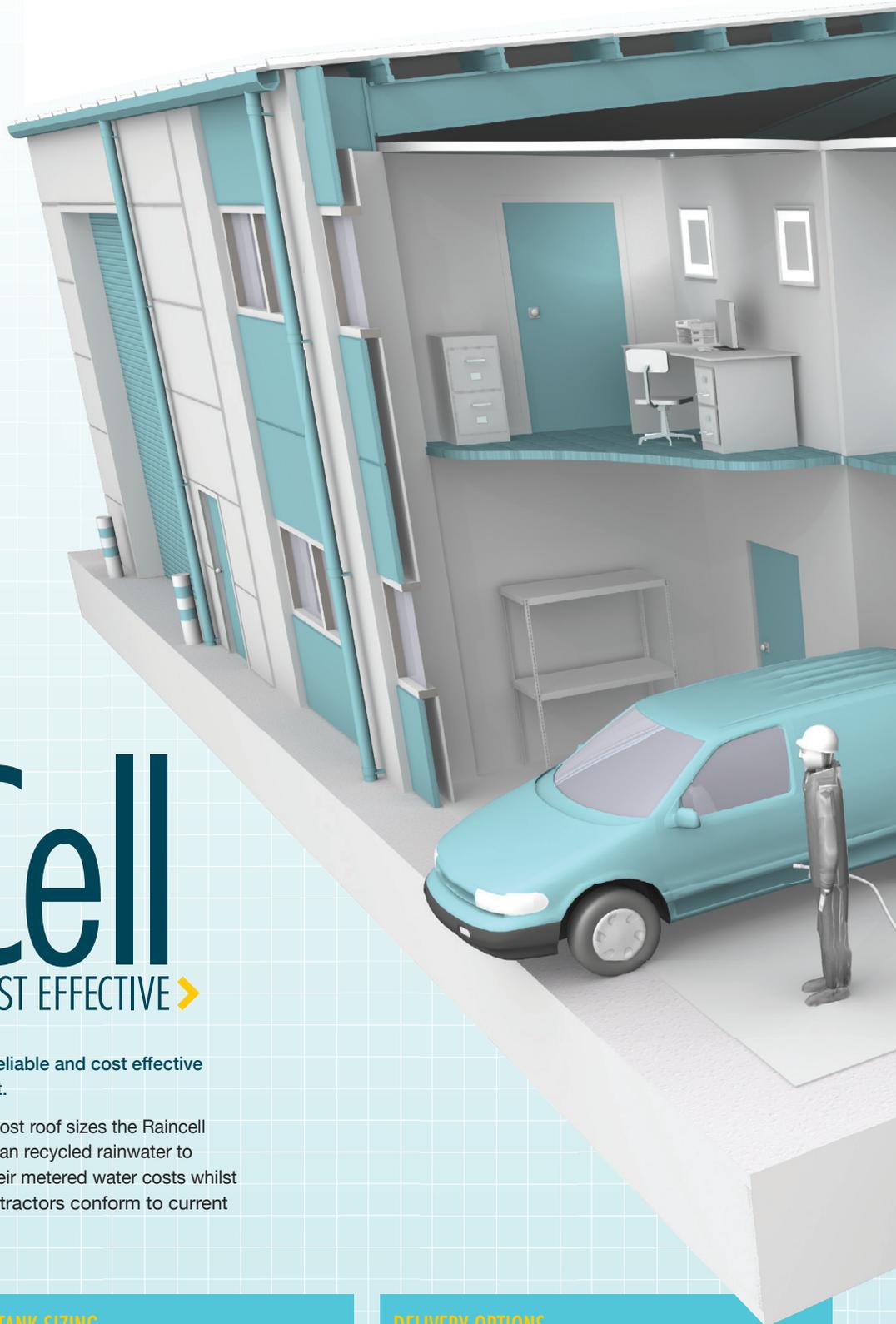
### OPTION 1 ONE SINGLE DELIVERY

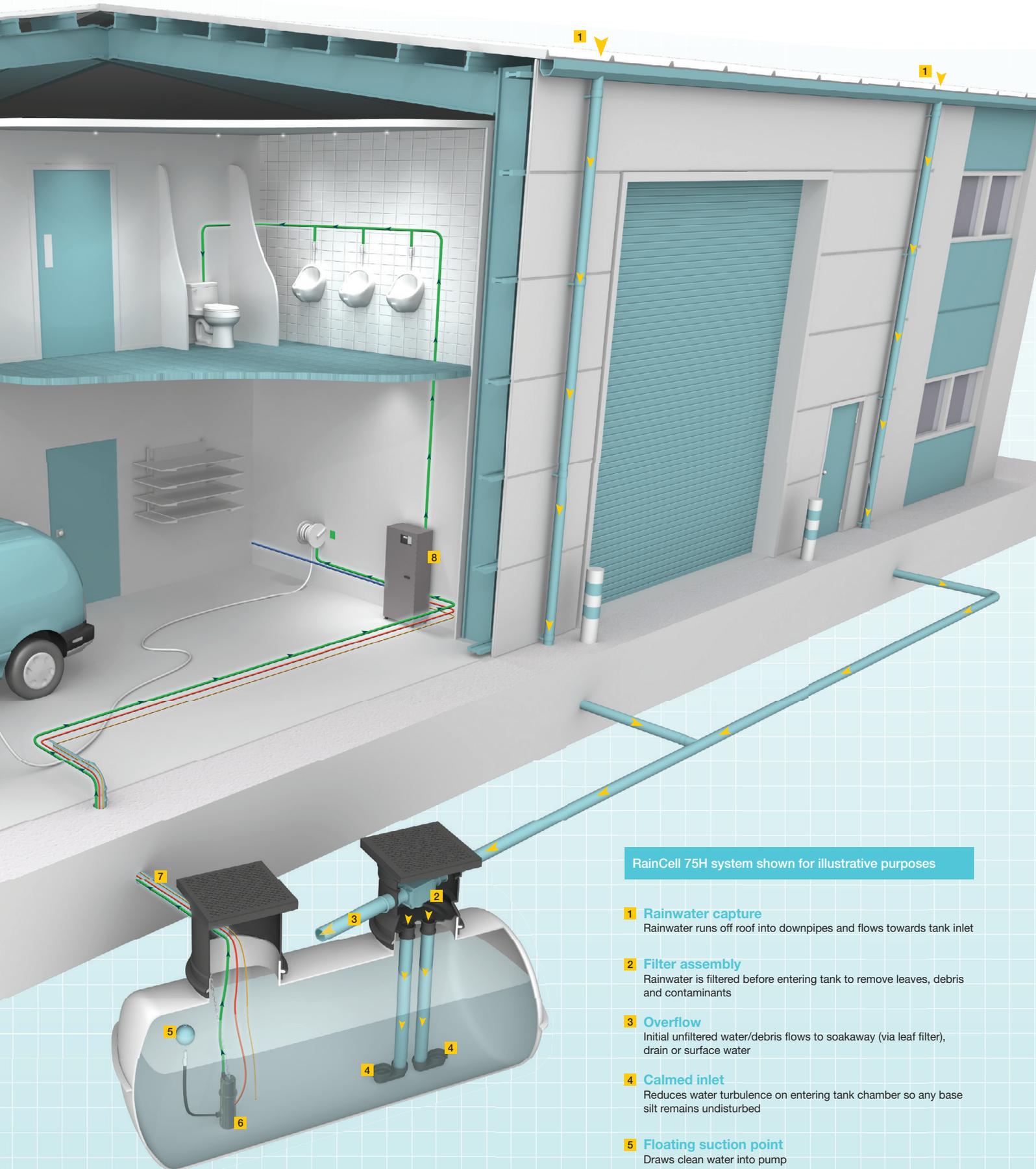
Tank and components delivered together when you're in control and can guarantee safe keeping.

### OPTION 2 TWO SEPARATE DELIVERIES

**Delivery 1** Tank delivery for installation during groundworks phase  
**Delivery 2** Component delivery in advance of electrical/plumbing

System payback is considerably extended when replacement parts have to be bought - look after your system and your system will look after you.





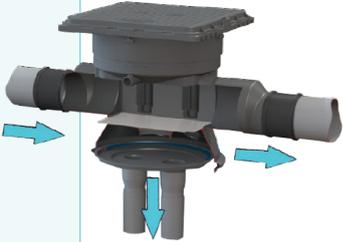
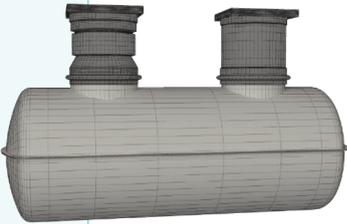
RainCell 75H system shown for illustrative purposes

- 1 Rainwater capture**  
Rainwater runs off roof into downpipes and flows towards tank inlet
- 2 Filter assembly**  
Rainwater is filtered before entering tank to remove leaves, debris and contaminants
- 3 Overflow**  
Initial unfiltered water/debris flows to soakaway (via leaf filter), drain or surface water
- 4 Calmed inlet**  
Reduces water turbulence on entering tank chamber so any base silt remains undisturbed
- 5 Floating suction point**  
Draws clean water into pump
- 6 Stainless steel pump**  
Pumps recycled rainwater to management unit  
*(In the RainCell X50 system, the water is pumped directly to utilities)*
- 7 Underground conduit**  
Carries pipework and electrical cables to and from tank
- 8 Rainwater management unit**  
Controls the distribution of rainwater from tank to utilities

#### KEY

-  Rainwater supply to property
-  Mains water supply to management unit
-  Power supply to pump
-  Level sensor probe

# SYSTEM SPECIFICATIONS >

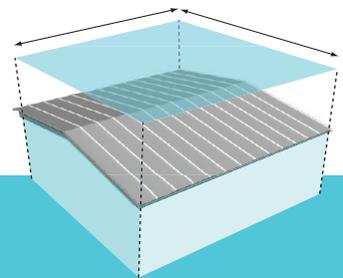
COMPONENT	RAINCELL X50 SYSTEM	RAINCELL 75H SYSTEM
<p>FILTER</p> 	<p>Stainless steel filter specifically developed for rainwater harvesting</p> <ul style="list-style-type: none"> <li>&gt; High capacity / high efficiency</li> </ul>	
<p>STORAGE TANK</p> 	<ul style="list-style-type: none"> <li>&gt; Heavy duty shell as standard ensures tank integrity</li> <li>&gt; Integral lifting eyes for improved on-site handling</li> <li>&gt; Unique 'keying-in' lip to assist anchoring into granular or concrete surround</li> </ul>	
<p>STAINLESS STEEL PUMP</p> 	<p>Twin stainless steel pump arrangement transports rainwater direct to utilities</p>	 <p>Single stainless steel pump transports rainwater to the management unit</p>
<p>RAINWATER MANAGEMENT UNIT</p> 	<p>X50 system consists of a compact control console inside the building and two stainless steel submersible pumps in the rainwater tank.</p> <p>On the console are the pump controls and a solenoid valve with funnel for topping up the tank with mains water.</p> <p>A level sensor constantly monitors the level of rainwater in the tank so that topping up with mains water only occurs when necessary.</p>	 <p>The 75H is a complete rainwater system with integral storage tank [1], dual pump pressure raising unit [2] and electronic controller [3].</p> <p>The controller continuously monitors the levels in both the storage tank and integral tank:</p> <ul style="list-style-type: none"> <li>&gt; the feeder pump in the storage tank conveys the rainwater to the integral tank</li> <li>&gt; The integrated dual pump unit transports rainwater to utilities</li> </ul> <p>If rainwater is scarce (or the system is switched to manual) mains water is fed to the integral tank automatically to match demand.</p>

# > TALK TO THE EXPERTS

In simple terms, the correct rainwater harvesting system is sized by calculating your rainwater capture and potential usage. Other factors including building type, roof type and site conditions play a key role in identifying precisely the right storage tank and rainwater management unit for your project.

Marsh Industries' system designers can work closely with you to identify the key requirements and, as a guide, the flowchart below provides a list of the questions that are often asked in order to get your project off the ground.

**ABOUT YOU**  
Please provide your name, contact details, the site address and site contact details



**CAPTURE**  
What is the plan roof area? (m<sup>2</sup>)  
What is the composition of the roof?  
*ie, pitched hard roof, flat roof without gravel, flat roof with gravel, green roof*

**BUILDING TYPE**  
What type of building will the rainwater harvesting system accommodate?  
*ie, office building, factory, industrial unit, warehouse, school, residential care home, sports facility, leisure site, stables, etc*

**DEMAND**  
Number of occupants?  
Number of WC's?  
Number of urinals?  
Number of washing machines?  
Area to clean? (m<sup>2</sup>)  
Garden area to water? (m<sup>2</sup>)  
Water dispenser?  
*ie, 1/2", 3/4", 1"*

**SYSTEM INFORMATION (if known)**  
What is the pipe length between the rainwater tank and system controls?  
What is the elevation difference between the rainwater tank and system controls?  
What is the pipe length between system controls and most distant utility?  
What is the elevation difference between the system controls and highest tapping point?

**ADDITIONAL INFORMATION**  
What is the required outlet pressure? (bar)  
What power is available?  
*ie, single phase (3 phase optional)*



## OTHER PRODUCTS IN THE MARSH RANGE

- > Domestic rainwater harvesting
- > Domestic and commercial sewage treatment plant
- > Pump chambers
- > Grease traps
- > Septic tanks
- > Cesspools

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