



The Water Saving House of the Future

AffinityWater

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The following chapters have been prepared to provide you with the tools, advice and clarity to start your water-saving journey through good design and meaningful change.

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Section 1



Foreword



Michael Pawlyn
Exploration Architects

It's good to be reminded how much we can influence the future. Rather than seeing it as simply happening to us, we can choose instead to shape it. Every human-made object you see around you, and all the systems that make up our modern civilisations, were at some point designed, and here's the crucial bit: they could be redesigned to better suit the future.

Similarly, many of the ways we live are recent developments that we became accustomed to and could be modified if we consciously decide to do so. There are many cases of how this has already happened. For example, recycling is the norm and some of the landfill sites have been turned into nature reserves.

Ten years from now, how might we think about water? Perhaps we have taken access to water for granted because, even in periods of drought, it's still there when we turn on the tap. The reality that is becoming clearer with climate change is that we are increasingly likely to experience drier summers and more intense rainfall. Extreme heat and flooding bring risks to human health, our homes and to wildlife. These are serious concerns, but the combination of design and behaviour change could go a long way towards addressing these challenges.

Attitudes have moved on from an outdated way of viewing water which tended to be very linear: it was piped into our towns and cities in large quantities, there was waste at every stage (in leaky pipes, extravagant use and inefficient fittings), then it was treated as cubic metres of nuisance to be taken somewhere else in large concrete pipes!

This approach also involved seeing ourselves as consumers for whom water was provided and waste was taken away. This is now shifting to a role as citizens, actively involved with service-providers.

The new approach to water is more based on efficiency and circular stewardship. Instead of using an average of 145 litres per person per day, Affinity Water has been helping customers aim for an average below 125 through its Save our Streams initiative. However, organisations such as 50L Home are demonstrating that it is perfectly possible to bring that figure down even further with the right combination of involved citizens and ingenious design - our Water Resources Planning Guidelines aim for this to be 110 litres per person, per day, by 2050 in a dry year. We increasingly need to look at the broader design of cities and rural areas so water can be managed to safeguard supplies and minimise flooding.

The good news is that this can be done in a way that enhances conditions for wildlife – reforesting upland areas, returning rivers to more natural conditions and transforming the hard surfaces of cities to become more permeable to rainwater. By allowing water to be absorbed, we can encourage greater planting on and around our buildings. Contact with nature can be transformative for both wellbeing and productivity.

We have some way to go but it's already clear that this offers lots of benefits: fewer water shortages, lower risk of flooding, more beautiful cities, restored wildlife and better mental health. That's the future we could create.

Why we all need to start saving water in our homes

The UK's long-term supply of water is under threat. If steps aren't taken now to fix the problem, then our demand will meet available supply levels in just seven years, and will surpass them by 2036.¹

It's a challenge for all of us, which is why we've created this guide. We want to show how good design can be one of the answers when it comes to preserving water.

A key part of this is fixing the nations homes, helping us to conserve resources that are often wasted by repairing leaks and other issues at the source.

If we can work together to save water, it will have many benefits: not only does it help protect our natural environment, but it can support you at home through less wastage impacting your utility bills.



Water Supply is Under Threat: The Facts

Recent research shows the UK's water supply is under threat:

- The amount of water available is falling. If global warming increases temperatures by two degrees, models show UK river flows could reduce by up to a fifth by around 2055. With a path of four degrees of warming, river flows could reduce by up to 30% by 2055 and be halved by 2085.²
- There will also be less rain in the summer, with the Met Office forecasting 47% less rainfall expected during UK summers by 2070 if high global emissions continue.³
- To put this into context, the Met Office projects that by 2060, summers like the one we experienced in 2022 (which saw the driest July in England since 1935) will become the norm for the UK^{4,5}. Other research suggests London could have a similar climate to Barcelona by 2050.⁶

Clear Concern from the Public:

But the problem isn't going unnoticed. Our recent research has shown this is a concern for people in the UK, even though we've seen some of the heaviest rainfall in decades this year:

- 70% of people surveyed accurately think the UK is either already at risk of drought or will become at risk over the next ten years.
- At the same time, one in five (19%) said they're worried about water shortages affecting them or their household in the future.
- Young people are especially concerned: a third of respondents (33%) aged 18-34 said they're worried water shortages will affect them.

Water efficiency is more important than ever, and there's a growing trend of people taking steps to save water at home. We want to show current efforts and successes in water conservation, demonstrating that positive change is within reach.

By learning from these insights, you can make simple yet impactful changes in your home. Whether it's fixing leaks, using smart water meters, or adopting DIY water-saving methods, every action helps.



Let's work together to make water conservation a priority and ensure a sustainable future for all.

Key findings: How we're currently trying to save water at home

We think it's important to understand how people at home currently save water, and what more we can all do. We commissioned research to look at what is happening right now and understand the attitudes of people living in Britain.

What is the state of saving water at home ?

DIY Efforts:

21%

[Only one in five]

have tried to fix a water leak in the home.

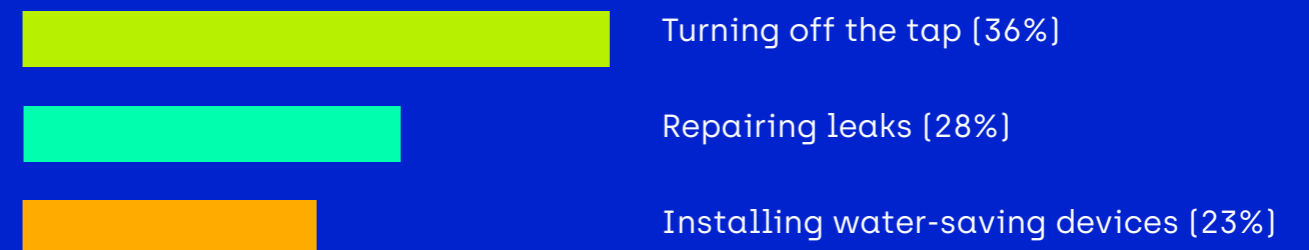


However, of those who have attempted to do it, **the vast majority [85%] were successful in doing so.**

Affinity Water have also launched the 'Look & Listen' test to help customers identify hidden leaks in the home, visit affinitywater.co.uk/homeleaks to learn more.

Common Water-Saving Methods:

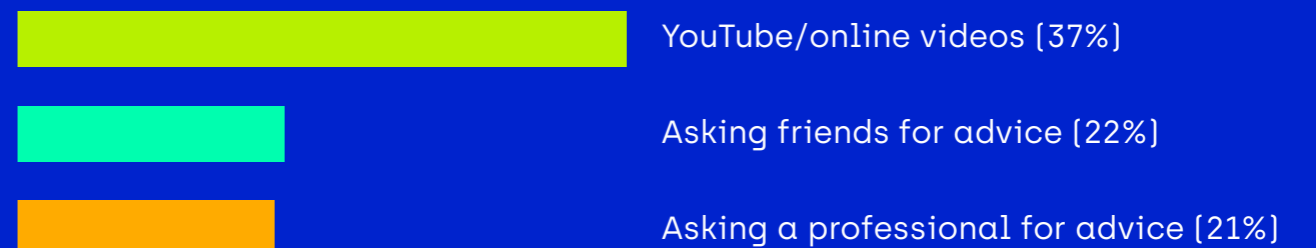
The most common DIY water-saving methods UK residents have turned to are:



However, a third [34%] have never used any DIY methods to save water.

Information Sources:

Of those who have used DIY water-saving methods, the most common sources of information were:



What is the state of saving water at home continued

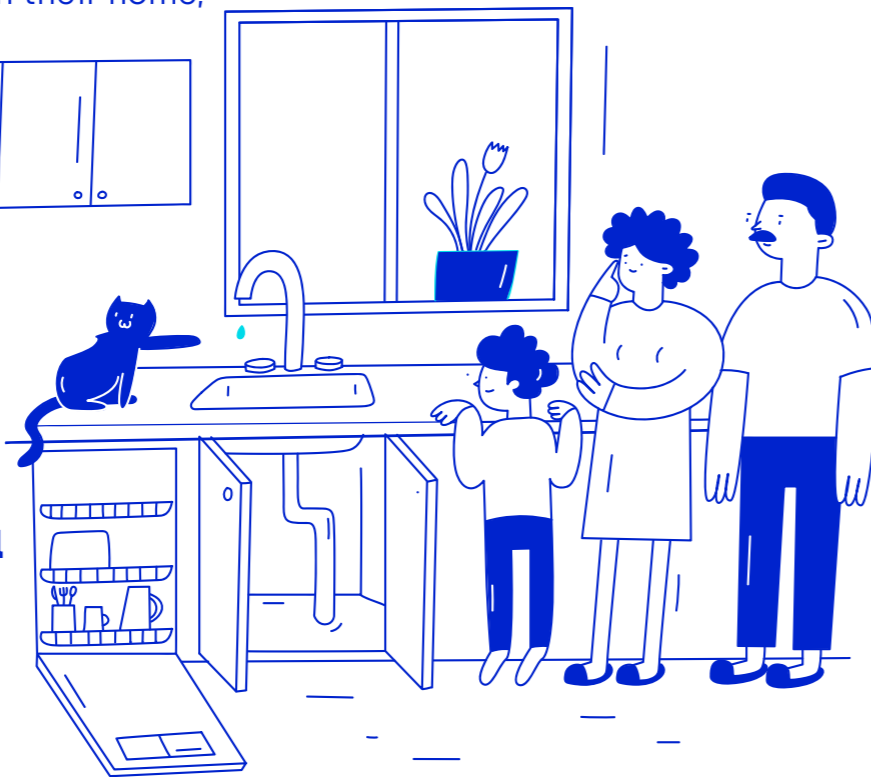
Awareness and Confidence:

38% of people surveyed

said they would not be confident in their ability to identify a water leak in their home.

When asked whether they know how to check the water pressure in their home,

57% of people surveyed said they have no idea how to do this.



Professional Help:

When asked what methods, if any, the public have done when trying to fix a leak,

46% said they'd hired a plumber.

However, those below 35 were more likely to try to fix it themselves or ask a family member for help.

Good design makes this less of a concern:

36% of 55 to 64 year olds

say they have never had to fix a water leak in the home.

Cost of repairs:

For those who called a professional to fix their water leak, the average cost of this was

£115.71

For the respondents who have attempted to fix a water leak in the home without hiring a professional, the average cost of doing this was

£97.67



59%

of people who report having a Smart water meter say it has helped lower their water usage.

Behaviour has a big part to play

We're committed to tackling this issue, which is why we've made significant investments in improving water transportation across our region.

Additionally, we launched the 'Save Our Streams' initiative, the UK's biggest ever water-saving campaign, designed to help Affinity Water customers find simple ways to save water every day, protecting and enhancing the UK's unique chalk streams while saving money on their bills.

But every single one of us has a role to play in driving change. From the Government to the water industry, through to individual households themselves. Indeed, if every household across the UK reduces their water usage, either by physical design solutions or changing their behaviour, we could make huge improvements, that will help save water.



Affinity Water's Top Five Tips

How to 'Look & Listen' for leaks in the home:

One of the best ways to change behaviour is to look out and listen for hidden leaks. Below are some tips to help you quickly identify a potentially costly and damaging hidden leak.



Look at Your Water Meter: Turn off all water-using appliances and fixtures in your home, then look at your water meter. If the meter is still moving, you likely have a leak somewhere.



Listen for Drips and Running Water: Pay attention to the sounds in your home. Listen for dripping taps, running toilets, or the sound of water running when no fixtures are in use. These can be signs of leaks.



Look at Visible Pipes and Fixtures: Regularly check under sinks, around toilets, and behind appliances for any signs of moisture, rust, or water stains. Look closely, as these can indicate a leak in the pipes or fixtures.



Look at Your Water Bill: Keep an eye on your water bill. If you notice an unexplained increase, look at your usage compared to previous months. An unusual spike could be due to a hidden leak.

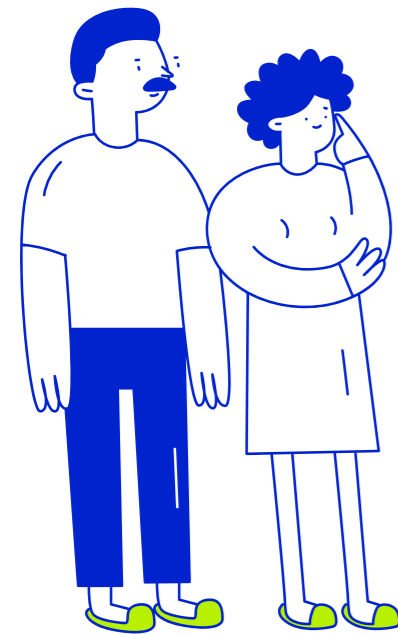
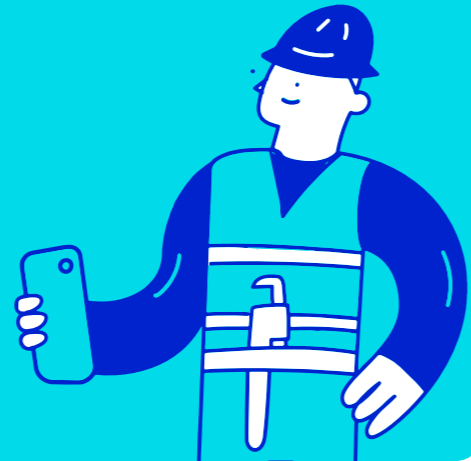


Use a LeakyLoo Strip: Affinity Water provides free LeakyLoo Strips to detect toilet leaks. After the last flush, dry the back of the pan, place the strip above the overflow hole, and check it in the morning (providing the toilet's not been used overnight). If altered, you have a leak.

We know fixing a leak can seem intimidating. If you think your home has a leak, don't wait to fix it – a small leak can become a big problem in no time at all.

To help, Affinity Water is offering a **FREE Leak Visit service** so we can come and assess your property.

Find out more about booking your own visit here: [Book your FREE Leak Visit today](#) or visit [My Water Footprint Home Visits](#). A home visit is a simple way to get advice and help from our water-saving experts.



Did you know?

Recent statistics from Water UK show

46% of people believe their household uses under **20 litres of water a day...**

This is especially important as our region uses more water than the national average, with the average person in the UK using...

...142 litres of water a day,
meaning a family of four uses roughly

550 litres daily.⁷

Making Water Efficient Design Choices

While our behaviour plays a huge role in conserving water, there are also design choices that can make a significant impact. Whether you are redesigning, retrofitting, or building your home, there are various options available.

Here are some of the best ways to incorporate water efficiency into your home, categorised into easy and practical solutions, as well as more ambitious future upgrades:

Simple and Practical Water Efficient Design Choices

When deciding on water-efficient solutions, consider your current water usage and goals:

- **Simple and Practical Solutions:** Ideal for immediate, low-cost improvements. Perfect if you're using a lot of water and want quick savings. Examples include low-flow showerheads, fixing leaks, and water-saving devices.
- **Ambitious Future Upgrades:** Suitable for major renovations or new builds with higher initial costs but long-term benefits. Great for significantly reducing your water footprint. Examples include rainwater harvesting, greywater recycling, and high-efficiency irrigation systems.

Choose the options that best fit your needs and budget to make a positive impact on your water usage.

Top Five Simple and Practical Measures:



Install Low-Flow Fixtures: Replace existing taps, showerheads, and toilets with low-flow models. These fixtures can significantly reduce water usage without sacrificing performance.



Add Tap Aerators: Aerators can be added to existing taps to reduce water flow while maintaining pressure.



Upgrade to Water-Efficient Appliances: Consider replacing old dishwashers and washing machines with water-efficient models. Look for appliances with the WaterSense label. You don't need to do this right now, but it's an important thing to look for next time you upgrade or replace an appliance.



Rainwater Harvesting: Set up a rainwater harvesting system to collect and store rainwater for outdoor use. This can be as simple as a water butt connected to your downspouts.



Drought-Resistant Landscaping: Replace water-intensive plants with native or drought-resistant species that require less water.

These top five measures are fairly low cost and can be as simple or complex as you want to make them. For example, if you have a larger household or use a lot of water in your garden you might want to invest in a sophisticated water harvesting system in your garden, but if you have less water needs you could naturally capture rainwater by leaving your watering can or vessels outside.

You can find out more about your water footprint, and the sort of water-saving devices that can help by taking our My Water Footprint Quiz. You could even win some free, water-saving devices!



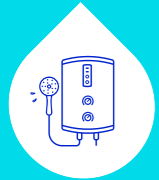
Ambitious Future Upgrades:



Implement Greywater Systems: Install a greywater recycling system to reuse water from sinks, showers, and laundry for irrigation and toilet flushing.



Smart Irrigation: Use smart irrigation controllers and moisture sensors in your garden to optimise watering schedules based on weather conditions and soil moisture levels.



Install a Tankless Water Heater: Tankless water heaters provide hot water on demand, reducing the amount of water wasted while waiting for it to heat up. Also consider the importance of where you place boilers and water heaters in the home - optimise the location within your house to reduce the amount of time water travels through pipes.



Insulate Hot Water Pipes: Insulating your hot water pipes can reduce the amount of water wasted while waiting for hot water to reach the tap.

The above measures will save significantly more water, but are slightly less accessible, and require more upfront investment to implement. If you want to be a water-saving hero we recommend also pursuing the above measures, but the more accessible measures should be tackled first.

Section 2



The Water-Saving House of the Future

What does saving water in the home look like?

Fixtures & Appliances: The Home Power Duo

Low-Flow fixtures



reduce water consumption without compromising performance.

Tap Aerators

reduce water flow while maintaining pressure.



WaterSense-labeled appliances



like dishwashers.

Using high-quality plumbing fixtures

prevents water loss and improves efficiency.



Water Butts: The Garden's Best Friend

Skip the wasteful hose – **collect rainwater** in affordable **water butts**



Even cheaper, **keep your watering cans outside** to collect free rainwater too!

Unleash your senses

Keep an eye out for damp patches and noisy pipes

They could signal a serious leak. Spotting and fixing leaks early can save you a lot of money long-term.

Mastering Drought-Resistant Landscaping

Choose drought-resistant plants



The Water Control Revolution

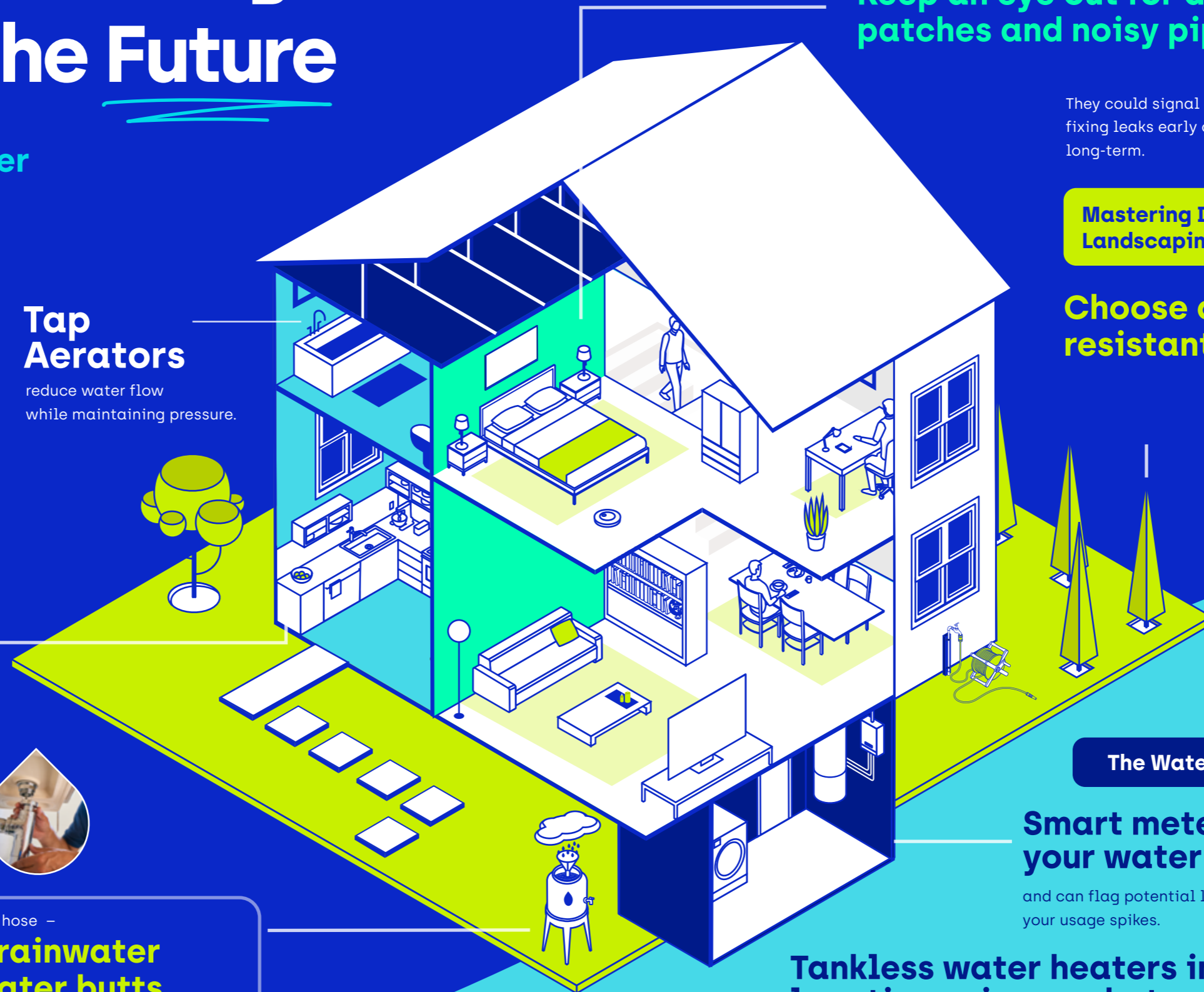
Smart meters track your water usage

and can flag potential leaks if you find your usage spikes.



Tankless water heaters in smart locations give you hot water on demand,

cutting down on waste.



Case Study

Alex and Olivia Bowen: Our journey to a water-efficient home

We recently decided to retrofit our home to make it more water-efficient. With the increasing threat to the UK's water supply and the potential benefits of lower utility bills and increased property value, we knew it was the right move. Here's our story and the lessons we learned along the way, with the invaluable support of Affinity Water.

Getting Started

We began by assessing our water usage and identifying areas for improvement. Initially, we faced challenges like identifying water leaks and checking water pressure. Many of our friends and family were also unsure about how to start saving water, highlighting a broader issue of awareness and education.

Partnership with Affinity Water

Our journey was significantly supported by Affinity Water. They provided essential resources and guidance to help us implement water-saving measures:

- **Free My Water Footprint Leak Visit Service:** Affinity Water sent a professional to assess our property, identify hidden leaks, and fix them, saving us time and money.
- **Look & Listen Test:** They provided comprehensive guides and tips on saving water. The 'Look and Listen' test is a simple yet effective method to detect leaks early, helping conserve water and protect our home.





Lessons Learned

1. Start Simple

Begin with easy, low-cost measures to build confidence and see immediate benefits.

2. Educate Yourself

Understanding how to identify leaks and check water pressure is crucial. Online resources can be very helpful.

3. Invest in the Future

More ambitious upgrades require higher upfront investment but offer significant long-term savings.

4. Behaviour Matters

Changing daily habits, like turning off the tap while brushing teeth, can make a big difference.

5. Community Support

Sharing experiences and tips with friends and family can help spread awareness and encourage others.

Conclusion

By retrofitting our home, we reduced our water usage and utility bills and contributed to conserving the UK's water resources. Our journey highlights the importance of starting with accessible measures, educating oneself, and gradually investing in more ambitious upgrades. We are incredibly grateful for the support from Affinity Water, whose resources and services made our water-saving journey much smoother and more effective. We hope our experience inspires others to make their homes more water-efficient.

Consider redesigning your garden

Incredibly, 41% of young people don't believe it's necessary to conserve the amount of water they use for their garden or outdoor space.

We live in a famously wet country, so perhaps it's easy to forget water isn't an unlimited resource. However, you may be surprised to learn that Sydney (Australia), sees more annual rainfall than the Affinity Water region. This, alongside the pressures of population and climate change, means water is becoming more and more crucial to conserve.

We have to think about the knock-on effects too: energy is required to filter and pump water to your home, so reducing your use also reduces your carbon footprint. It also means we can keep protected ecosystems topped up for our favourite wildlife, animals and birds to thrive.



Key stats about saving water in the garden:

42% of people surveyed collect rainwater via a water butt.

54% of 55–64-year-olds collect rainwater via a water butt compared to 23% of 18–24-year-olds.

16% of 18–24-year-olds install automatic irrigation to save water in their garden/outside space compared to 1% of 55–64-year-olds.

40% of 18–24-year-olds are hesitant as they don't know where to start.

33% of people surveyed reported being hesitant to start a 'water-saving journey' as they believe it is too costly.



Top water-saving garden tips from expert Sam Proctor, of Chiltern Garden Design:



- 1. Avoid using the hose** and switch to a simple watering can.
- 2. Mulch your soil to keep it moist.**
- 3. Tanker self-watering devices hold more water** and come in various sizes – and they're available from around £12.50.
- 4. Collect bowls of water from after your shower or bath** to water your plants in a drought.
- 5. A terracotta water spike** for a planter costs under a tenner and can help to **keep plants hydrated during hot spells.**
- 6. Don't water your lawn – it will return to vibrancy after it next rains.**
- 7. A rainwater butt can collect rainwater from your roof or shed.** Your plants will thank you; they prefer rainwater to tap water in any case. Water Butts are also available on the Affinity Water website for a discounted price.
- 8. Water early in the morning or late in the evening to avoid wasting water through evaporation.** Water your flowerbeds deeply once a week rather than giving them a sprinkle every day. This will encourage roots to grow down in order to seek moisture in the soil.

Water butts tend to be better for the environment as they prioritise using rainwater over tap water, and plants prefer this. Younger generations are perhaps more inclined towards technological solutions such as smart irrigation systems. Once installed, these are seen as less effort given, they automate the watering process. Irrigation can save water as it's targeting water just to the roots of the plants, rather than wasteful hose usage or sprinklers.

Case Study

Taking Inspiration from Nature: Evolution as the next Revolution

from Michael Pawlyn

Some have claimed that 'a camel is a horse designed by committee' but they are extremely well adapted to saving water and we could learn a lot from them in addressing our own challenges. Camel's nostrils are water-recovery miracles that allow most of the humidity in the air they breathe out to be recaptured.

Similarly, their kidneys and digestive system squeeze out as much water as possible so that their liquid waste is super-concentrated, and their solid waste is dry enough for desert-dwelling people to use it to light fires. A camel's hump does not store water in liquid form but rather as fatty tissue which can be turned into water and energy when needed.

This is one of many examples in nature that could inspire us to rethink the way we use water. For instance, how might we recapture much of the water that goes out through extractor fans as humid air or down our drains? It's quite an odd idea to treat water to high standards suitable for drinking and then flush the toilet with it. This is one of the biggest uses of water in homes so how might we redesign our sanitary fittings to use less? Like the camel, are there sensible ways to store water for times of scarcity?

There are beetles that have evolved ways to capture water in deserts, trees that harvest moisture from fog and cacti with spines that can draw water out of the air. There's even a lizard that can drink with its feet: if it is standing on damp ground, the water tracks along grooves in its skin all the way to its mouth. In other parts of the world that experience huge amounts of rainfall, ecosystems and species have evolved that we could learn from to develop solutions to flooding.



Photography by Kelly Hill

The house of the future could incorporate many of these ideas: harvesting much of the water it needs from its roof and walls, absorbing large influxes and storing it to supply lush planting around it.

While the future may present some big challenges, it's encouraging to know that nature has evolved solutions to many issues, and these can inspire us to adjust our lifestyles and to design ingenious solutions. Handled the right way, our rethinking of the way we use water can safeguard the future and restore our relationship with the rest of the living world.



Section 3



Water-Saving home statistics

Tackling Leaks Head-On

400 litres daily

– the amount of water that can be lost to a hidden toilet leak!



38% of people surveyed admit they **couldn't spot a water leak** in their home.

While only **21% of people tackle home water leaks themselves**,

a whopping 85% succeed - proving anyone can do it!



Water Butts: The Garden's Best Friend

42% of people

collect rainwater via a water butt.



The Price Tag Factor

DIY leak repairs cost £98

on average while calling a pro costs £116

The Drought Dilemma

70% of People

already fear drought in the next decade

The Met Office warns **scorching summers like 2022 will become the norm**



The water Control Revolution

Of the **37%** of people surveyed who report having with a **Smart water meter**

59%

use less water



Conclusion

We hope this guide has outlined the importance of good design in the home as essential to saving water. Whether a new build or retrofit, we have to be smart about design in order to save resources.

Architects and experts are just the tip of the iceberg in this respect. There's work that can be done now which will change the way we use water in our homes that will help us protect the environment; whether creating climate-resilient buildings, embedding green initiatives that support biodiversity, or by adopting energy-saving concepts throughout the way we live.

But this goes hand in hand with customers too. Everyone needs water, and everyone uses water. So how can we save water while not compromising on building nicer places to live?

With the tools, tips and insights in this guidebook, we want to inform the wider public about what they can do, the resources they can draw on, and who to speak to when conducting an internet or AI search isn't enough.

Whether that's getting advice from a professional designer who tells you the best way to retrofit a home, or speaking to a water supplier like Affinity Water, who can provide guidance on the best way to save water and money, it's important we all start doing the most we can now; working together to create a more sustainable future.

References and further reading

Other places to start learning

The Wildfowl and Wetlands Trust is a great place to find out about how to save water in the home and garden, to find out more visit: www.wwt.org.uk/discover-wetlands/wetland-friendly-living/saving-water-in-the-home-and-garden

To learn more about water use and get smart about using water in the garden, visit: rhs.org.uk/science/gardening-in-a-changing-world/water-use-in-gardens

For guidance and a pledge to switch to using rainwater for gardens, visit: Mains2rains.uk

Water Wise – Water Saving: Save Water – Waterwise

50L Home – 50L Home I 50L Home

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Affinity Water



To read more about Affinity Water's water saving initiatives, and better understand your water footprint, you can visit www.affinitywater.co.uk/saveourstreams.

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 [Affinity Water](https://www.linkedin.com/company/affinitywater)