BUILDING INSIGHTS LIVE

Building Insights LIVE: Water Efficiency & Water Saving Innovations in New Build Housing

Introduction: The Global & UK Water Scarcity Context

Global demand for water is expected to exceed supply by 40% in 2030, according to the UN. The Environment Agency says England and Wales will need an extra 5 billion litres of water by 2050 due to a combination of factors including population increase, and scarcer water availability due to climate change.

This is also the year when the UK is obliged by law to achieve net zero carbon. To address this double whammy, the construction industry needs to play its part by cutting water use alongside the energy use from heating water, and the housebuilding sector is being asked to do a lot of the heavy lifting. The accepted solution is to boost supply, cut wastage and reduce demand, and housebuilders are in a key position to address the latter two.

The debate in new build residential has arguably been dominated by energy performance, meaning the spotlight has been monopolised by building fabric, low carbon heating, and renewables. But with The World Green Building Council saying by 2030 there will be a yawning global gap between water supply and demand of 40%, and the built environment accounting for around 15% of drinking water use, this is where large gains can be made using water saving innovations.

The carbon impact of water use in the home will become proportionally greater in future years, meaning that it should receive more focus. This is because as the means of heating hot water such as for showers becomes fully decarbonised, the proportion of carbon used for heating (currently around 95% versus 5% for supplying the water) will be lower, meaning the relative impact of bringing the water to the home is greater. This puts more emphasis on water saving, as opposed to just saving carbon on heating.

The recent House Builders Federation report on water saving reveals some relatively good news - they say new builds are using 96,000 litres of water per year, compared with 130,000 used in

ROUND TABLE ATTENDEES

Richard Lupo, Managing Director, SHIFT Environment
Neil Williams, Principal Civil Engineer, Burroughs
Nathan Richardson, Head of Policy & Strategy, Waterwise
Jack Brayshaw, Head of Technical Innovation, Vistry Group
Jeff House, External Affairs & Policy Director, BAXI
Andrew Tucker, Water Demand Reduction Manager, Thames Water
Nigel Griffiths, Sustainability Expert & Former Director, Sustainable Traditional Buildings Alliance
Tom Reynolds, Chief Executive, Bathroom Manufacturers Association
Naomi Sadler, Sadler Energy & Environmental Services (SEES)
Kevin Wellman, Chartered Institute of Plumbing & Heating Engineering (CIPHE)
John Slaughter, External Affairs Director, Future Homes Hub
Danielle Michalska-Morris, Group Technical Innovation Manager, Barratt Homes

ROUND TABLE SPONSORS

- **Tony Gordon,** Managing Director, Showersave
- **Dan Lintell,** Sustainability Manager, Triton Showers
- **Simon Gibbins,** Key Account Manager, Residential, Hansgrohe International

"As of April 1, every water company will have to introduce a common environmental incentive for every housebuilder"

Andrew Tucker, Thames Water

existing properties. Thanks to efficiency measures being embedded into new builds, the HBF claims that "nearly all new homes are delivered to use an average of 110 litres per person per day, compared to the typical 150 in older homes." Wales has already made 110 litres mandatory, and The Future Homes Hub has given signposts on its plan to go further, namely for new homes to achieve 90 litres by 2035.

Developers have been given incentives such as those from water companies – already hard-pressed tackling multitudes of leaks – to provide 'water neutrality' required by many planners across the country. This means that a new development needs to be designed in such a way that it will not take any more drinking water from the locality than what was there before. But, what other levers are needed to make those developers prioritise water saving systems, such as within the upcoming consultation on Part G? Our well-timed round table saw a large amount of discussion revolve around the controversial 'per person per litre' approach currently used to measure water usage in properties within Regulations, and a strong consensus behind the alternative 'fittings-based approach' which sets maximum limits for individual water-using appliances fitted.

In our 2023 audience research of housebuilders and developers focused on the subject of increasing water efficiency in new housing, three-quarters believed that achieving water neutrality would not be possible without them making significant extra investment. So, what are the best approaches to take to balance cost, efficiency and performance for customers, and how can the industry best collaborate with specifiers to identify them?

Energy savings

Alongside the domestic water savings required in Part G, there are also key drivers for heating water in a more efficient way to achieve the large carbon savings required in the upcoming Future Homes Standard, beginning with the updated Part L in 2021. However, while there are more innovative solutions around than ever before, household consumption of water is not going to decrease. In fact it's likely to increase as multi-generational households become more prevalent.

The Future Homes Standard (FHS) and the Home Energy Model within it has been welcomed by some as it replaces SAP with a range of more accurate means of measuring energy performance, but what has it done to specification of effective water saving products – for example with the removal of SAP's Appendix Q enabling more innovative solutions, and are the assumptions on

Andrew Tucker, Water Demand Reduction Manager of Thames Water

demand right? And if housebuilders are going to take on the design and installation of their own hot water heating systems, do they have the right skills, time and information required to move from 125 litres to 110 and beyond?

Part L 2021 set new energy performance requirements for both new and existing buildings, and the FHS ramps this up further for new builds to make them 'zero-carbon ready' by 2050, based on the grid being 'decarbonised.' Building fabric improvements will go some way to reaching the aims, however increased building efficiency won't affect demand for domestic hot water. In fact, as the energy efficiency of the fabric improves, hot water is likely to make up the largest share of a household energy budget.

This is why technologies such as high efficiency electric showers and waste water heat recovery are now increasingly in the spotlight, as better Environmental Performance Certificate scores become the focus in future. In an average house, hot water use accounts for 23% of total energy use, and the Energy Saving Trust reckons 50% of the generated hot water cost is attributed to showering – making showers alone responsible for 11.5% of the overall energy use.

Water saving and energy saving also means lower bills for customers, and investing in more efficient, smarter solutions also gives opportunities for more enlightened manufacturers and housebuilders to differentiate in the market, albeit with challenges on capital budget being ever-present. And, as well as the key aim of reducing water use, simple solutions like recovering and recycling what would otherwise be wasted heat from showers can provide major carbon savings per property, and are being increasingly embraced by housebuilders as a viable means to achieve compliance with the FHS.

"Water efficiency is just not on our customers' radar"

Jack Brayshaw, Vistry Group

However, what are the challenges as well as the opportunities for the housebuilding industry on increasing water and related energy efficiency in properties, from appliance performance to increased piping? Our multidisciplinary round table brought leading housebuilders, water experts and solutions innovators together to share their views on the issues around water saving and water heating, and identify realistic solutions. Part G of the Building Regulations has not been updated since 2015, but as our experts around the table revealed, an overhaul is expected soon, making this event very well timed.

What do developers need to do now, to bring water up the agenda, achieve the savings their customers need, and not overtly compromise the levels of performance that residents expect? What is encouraging them to take proactive steps to improve specification, and what are the energy saving solutions that housebuilders can and will embrace to offer practical options to their customers which will also save them money down the line?

Jack Brayshaw, Vistry Group

The Debate

The round table kicked off with session chair James Parker, editor of Housebuilder and Developer, asking the delegates their views on the HBF's claim that most housebuilders were now building to not just the 125 litres per person required by Part G of the Building Regulations, but in fact to the optional 110 litres per person. There was also some controversy around whether litres per person was in fact the correct metric to be using in order to drive uptake of better solutions, rather than the 'fittings-based' approach which focuses on labelling of appliances to guide specifiers.

As John Slaughter was on the round table panel representing the HBF as its external affairs director, the chair initially directed the question to him to see if the housing expert believed the claim had veracity. This was against the context of a 2023 Industry Viewfinder audience survey which Housebuilder and Developer undertook, where a third of our survey sample said that even restraining 'as designed' water use to 125 litres per person required 'substantial' levels of extra investment on their part. And this would also not of course dictate the eventual water usage as this would be dependent on user behaviour over time.

Slaughter said the industry had embraced innovative solutions to reduce water use in properties, and there was a time lag with regulations having to catch up: "While the housebuilder can only deal in terms of the design specification, I think it's probably likely that the norm is below 125. This is partly because if you look at the fittings ratings in Part G for appliances, for washing machines and dishwashers, what's available on the market is more efficient than what is listed in Part G."

Part G Revisions: Fittings-based or per person calculations?

Andrew Tucker of Thames Water confirmed that Part G would see a new consultation on changes to update it in various ways in the coming months, which would be a positive move for water saving in new homes. "We don't yet know what it's going to mean," he told the group, and added that all water companies were "recommending to Defra that they only use a fittings-based approach, and ditch litres per person, per day because the numbers are absolutely rubbish and not needed, and a developer can't measure them."

He instead advocated not only using the fittings-based approach, but "aligning it to the water label" (water consumption labelling of products in the same way as current A-G energy consumption labels), which has been promised as a mandatory solution for a while, but which Tucker says is now imminent.

"It will be introduced next year by the Government," confirmed Tucker, adding, "it will be mandatory for all basic devices that you currently see in the bathroom, and in the kitchen."

John Slaughter said however that he believed the regulatory target was a crucial driver of performance: "I think having a regulatory target is critical from a developer point of view; you need to factor all this into your land acquisition, of your commercial decision making. So having clarity about what the standard is, is kind of essential." He said that with that accepted, it was more about ensuring regulations were "revised and updated" in a timely way, with the planned summer consultation on a new Part G having been scuppered by the snap election.

"Instead of whacking on a load more PV, maybe developers might consider looking at rainwater harvesting"

Naomi Sadler, SEES Consulting

Andrew Tucker added that the smart meter data Thames Water had gathered from homes so far bolstered his view that the litres per person approach should be dropped, as "it's just the wrong thing to then impose upon a builder. It just gives you a nice number and 50% of the equation is based on [user] behaviours – which builders and architects and planning authorities don't influence."

He said the range of consumption even between identical builds is "huge – one house uses 305 litres on average a day, and the one next door uses seven and a half thousand litres a day." Tucker added: "It's been a burden upon developers. You want to make it as simple as possible for a developer, an architect, a consultant, a contractor, planning authority to get through."

Tucker also alluded to the 'national water target' which the UK currently has – namely a 20% reduction in total water that's put into public supply by 2038, calling it a "massive," and querying as to whether the other panellists were aware of its existence. However, he said for housebuilders, it needs to be "as simple as possible, a metric they can actually measure," (saying that "at no point in time can a developer or local authority measure actual per capita consumption (PCC))."

He said that in London currently, based on smart meter data being gathered by water companies, new homes were using roughly the same as an average existing home; "about 145 litres per person." Danielle Michalska-Morris, representing the UK's largest housebuilder Barratt Homes, said that "on paper, not in practice [major] developers are below 110 litres per person," and that Barratt and its sister firms Redrow and David Wilson "were all at 105 on paper." This encompasses the issue of 'as-designed' performance being fully dependent on 'as-built' and 'as-operated' performance to be fully borne out.

She said that Barratt had an ambition to go beyond regulatory requirements, and acknowledged that "Part G is very outdated, and there's new products on the market that we can achieve better with." Michalska-Morris added that in some authorities, particularly in London, they have been for some time driven to go below the regulatory 125 litres per person."

Tom Reynolds of the BMA asked if, in the light of the unified water label having "a really robust methodology," including technical criteria, "why Defra would do it any other way."

John Slaughter said that the Future Homes Hub was "increasingly looking at the Building Regs world as a whole, and that they needed to stop looking at things on a one by one silo basis." He said that as housing standards were driven up across the board, the industry "needs to have a holistic vision about how everything can best work together, how we can harness the synergies that are potentially there and prevent the barriers and conflicts."

Naomi Sadler, SEES Consulting

Solutions & fittings-based challenges

Dan Lintell of Triton said that with whole-house approaches to water saving requiring architects to "balance a myriad of things," the per-person measurement had a role as it was "very simple." He asked Andrew Tucker what his alternative approach would look like.

Tucker said that the Government has written to every local authority in England, "recommending that every local plan adopts the fittings based approach to the high performance standard that has not been adopted by local authorities in the way that it should have been." He added that "most" water companies have also contracted authorities requiring them to include it in their local plans, and it was "a better way of guaranteeing that at least whatever gets specified installed is actually efficient."

Tom Reynolds of the Bathroom Manufacturers' Association (after praising the round table for a "refreshing chance to have a really in depth conversation about water rather than energy"), said that his members were beginning to come around to the fittings-based approach. "Historically, BMA has been very defensive of the water calculation methodology, based on a defence of flexibility and choice for developers who are effectively our end customers."

He added, however, "I think that position is changing among manufacturers, for a couple of reasons, firstly, as we look to the future and a necessary lowering of per capita consumption because of the looming threat of water scarcity, if we stick with water calculation alone, you're going to end up with some really perverse behaviours, like people drilling overflows in baths at a

"You could use energy as a kind of entry route into water, as heating water is going to be a large part of energy bills"

John Slaughter, Future Homes Hub

really low level, and it just will drive dissatisfaction with bathroom manufacturers' products."

Reynolds added there was "much greater flexibility and choice" now available with lower flow products, "than five years ago," adding "the level of innovation has been extraordinary in recent times." So I think I'd much rather be having a vigorous debate about where the thresholds are set in a fitting zone only based approach.

He said the industry was "supportive" of mandatory labelling, but appealed to the Government "not to reinvent the wheel" as they rolled out the new label. "There's been an industry led scheme called the unified water label operating on a voluntary basis for many years, just make that a mandatory requirement."

Danielle Michalska-Morris of Barratt Homes said there were currently challenges in adopting the fittings approach: "We looked 12 months ago to go to the fittings approach as our preferred method, but [water companies] come back and say, but we need you to prove your litres per person per day. We're still having to do the water calculator; there's no issue with the fittings approach per se, it's more that the per person measure is still around; there's that little bit of conflict there."

Nathan Richardson said that his organisation Waterwise "definitely support the fittings based approach," however added that there needed to be a focus on auditing existing properties. He explained: "We did a project with Welsh Water which went into 80 homes, and none of them complied with the legal standards."

Tom Reynolds said that the regulations around water fittings are "in a mess, because we've got Part G, we've got water supply and water fittings regs, and we've got the water quality regs, we've also got the Construction Product Regulation and now the Building Safety Act, which needs to be taken into consideration. And within the next few months, we will have water labelling regulations as well. All of these regulations are really hard for manufacturers to navigate, let alone our various stakeholders. And you know, there's not always the synergies that you'd expect between these regulations. I think we could do with going back to the drawing board."

For developers, there was good news on a clearer set of incentives from Andrew Tucker of Thames Water, who said that every water company, as of 1 April, "will have to introduce a common environmental incentive for every housebuilder. It broadly follows what we've had in place already for two years, to reduce the complexity and standardise it using the same methodology, but just has a financial payment to go a little bit extra."

Tony Gordon, Managing Director of Showersave

Turning low flow into high engagement

There was consensus that consumers had to be engaged fully in order to ensure that the design aim of lower water use and lower energy use were not compromised by problems with lifestyles post-occupancy. Methods of engaging consumers on water savings and water and energy saving measures (such as via EPCs and the new product labelling regime) were discussed, including the pros and cons of both.

Simon Gibbins from event co-sponsor Hansgrohe International said that the water label would help towards the heavy-lifting job of trying to increase the value of water in consumers' perceptions. However he added a caveat that it should be compulsory for all manufacturers and merchants: "I'd love to raise the value of water in the eyes of the consumer, but I feel we need to live in the real world, and so I agree that we need a mandatory water label and in making it compulsory at point of sale."

He also pinpointed the dilemma for consumers as well as developers that the better performing products on water use and energy criteria may "potentially be a lower flow product, and the consumer sees that." However, Andrew Tucker reassured the group that the new unified water label was "building quality of experience into the assessments." Consultant Richard Lupo mentioned that Severn Trent Water were "citing flow rates that are completely different from what the manufacturers are publishing." He added that they are "tearing their hair out not being able to enable their builders to benefit from these incentives."

Naomi Sadler took a different approach, from practical experience assessing properties, to bringing consumers on board on water neutrality – saying labels were not the panacea and instead advocated leveraging the link between water and energy savings. "When we do water neutrality statements, we calculate it on an occupancy rate on a per-house basis, in the same way as the water savings and SAP are calculated. It makes it more relatable – someone's not going to calculate based on their floor area." She added: "If it's on their EPC and it's calculated for people, then they're more likely to understand when the water bill comes through."

Andrew Tucker said that if the direction of travel towards the mandatory water label continues as it has so far, it will "become almost the water version of performance measurement, in the same way that an EPC tries to do it for the whole house." He told the developers at the round table: "I'd like to lift the burden from you; it shouldn't sit with you. The label is an opportunity to make that so much simpler, and it'll be the guarantee of in the same way that is done elsewhere in the world, of what is specified, purchased and installed post construction."

Richard Lupo highlighted that post-construction checks were key to discovering what is happening "between the design stage and what actually gets built, and this needs addressing." The problem with this, he said, was "if you do find something, who picks up the pieces afterwards? The builders have gone, there's got to be some kind of sort of lever to get it repaired properly."

Andrew Tucker reiterated that Defra's new water label will "be run by them in the same way that they administer the A to G." It'll have "a long term ramp up benefit. It'll drive two things, firstly procurement – you'll slowly be wanting the better performing one, and also drive manufacturers in the same way the energy ratings have done. No manufacturer wants to be the only one with a G rated product when their competitors are A and B."

Kevin Wellman, representing plumbers and heating engineers, and echoing Tom Reynolds' earlier 'reinventing the wheel' comments, voiced concern about the possibility of hampering clarity for installers "if we end up with two schemes" for water efficiency ratings. So we do need just one scheme at the end of the day. He added that "consistent messaging was needed; if the industry doesn't understand what to do, there's a big problem." He also advocated, alongside a mandatory label, "mandatory CPD," and licensing of installers, as well as a 'home health check' for plumbing.

Informing customers

The key issue of customer information is, as articulated by Naomi Sadler, that "no-one reads home user guides," and reminisced to when a proposed Home Information Pack was being introduced. She instead said that a monitoring system linked to smart meters could be used, which for example showed when water was "constantly on, so maybe there was a leak." She said this would "action the homeowner," because they'd be aware of the transparency of risk they'd be passing on to a potential buyer.

Centre: Dan Lintell, Sustainability Manager of Triton Showers

Tom Reynolds said that consumer trust and buy-in to lower flow products was being damaged by constant news of leaks across the UK: "People are having to put up with a six litre a minute shower, but the water company is pumping out megalitres at the end of their road via leakage is going to make them less than happy."

Danielle Michalska-Morris said that education of customers was crucial, "because at the minute, they take water for granted. Energy bills are high, so everyone's on it. Our customers are coming into sales centres and saying we can turn this plug off or do this to save energy, but nobody talks about water.

Jack Brayshaw of Vistry agreed, warning that water saving and water scarcity isn't on consumers agenda yet. "We're not getting screamed at because they want it. Energy efficiency is a massive driver; now we want EPCs, we want to make sure our bills are low, if not zero, but water efficiency is just not."

John Slaughter said the Government had a major role to play: "If you think about the history of energy and why we actually focus on that, it's got a lot to do with the government saying this is an important issue. They need to say something similar about water, I think. And you could actually use energy as a kind of entry route into water, as heating water is going to be a large part of your energy bill."

Naomi Sadler drew the crucial connection between reducing the water used in homes and the carbon savings required from heating water: "Water and energy are so closely linked. You could actually use the SAP calculations and have a section in there which you

put all the fittings in, and it will then say how much and then, like an EPC, you have energy and you have water. This is how water efficient your house is, and you're rewarding the developers that are doing the right things and reducing their water usage."

Only as good as the biggest leak

Several delegates highlighted the elephant in the room, namely, leaky appliances, but also the wider problem of leaks across the network. Even if all new homes were specified with the latest water saving devices and appliances, and users managed to use them to an optimal efficiency level, all of the goals could be undermined by the myriad leaks which water companies are attempting to tackle, both internally and externally to properties. It's estimated that water companies lost over a trillion litres of water just in 2023.

Principal civil engineer at Burroughs, Neil Williams, summed up the issue: "We can stop all internal leaks, but if the overall network is leaking megalitres per day, then it's never going to be super efficient."

Nathan Richardson said: "It's thought 10% of homes have a leak at any one time, you'd think every property should have some sort of leak alarm in it." Danielle from Barratt Homes gave her practical experience of how selling a leak protection-proofed property was difficult: "We did look at water protection systems; but actually we're delivering a new property, it shouldn't leak. 'By the way, we've got a leak detection system just in case."

Andrew Tucker gave the shocking statistic that of the current 1 million homes within London producing hourly smart meter data, "roughly 9% never stopped flowing," which means they're leaking. "It's a mixture of different things, but WCs are by far the biggest part. We've got new homes that are less than 12 months old, roughly 5% of them already have a leaking toilet. It's the fundamental design and materials being used; there's no redundancy, so if something's not perfect, you've got a leak."

Kevin Wellman said that he believed the insurance industry pays out about 2 million pounds a day in water escape insurance claims. "Most are down to poor workmanship and pipe work and fittings. "We've talked about skills issues in the past that have been the problem. Sadly, I fear that they will get worse unless we do something serious about it."

Aligning with energy savings & the Home Energy Model

Water heating in properties is soon to become the highest energy demand in homes, post-Future Home Standard when much tighter fabric reduces heating bills significantly. Aligned with this, the carbon associated with water needs similar focus upon, agreed our delegates. However, the Home Energy Model aspect of the FHS was also under scrutiny, including how assumptions currently made on usage affect specification of water heating systems. The more comprehensive (and expensive) Option 2 for the FHS includes

Left to right: Nigel Griffiths, sustainability expert, and Simon Gibbins, Key Account Manager, Residential, Hansgrohe International

measures like waste water heat recovery, however it remains to be seen whether the Government and industry will be brave enough to pursue this, post-consultation.

Jeff House of Baxi said that hot water will "absolutely be the predominant energy load," and this would mean that when we're looking at compliance calculations, we're going to get absolutely hammered on our designs for hot water systems." Whether heat pump-based or other electric systems, he said we're "largely looking at hot water storage cylinders, and we'll be "driven to smaller cylinders where possible." He mentioned his main concerns were around retrofit: "So we've got a building delivered on paper with fittings that deliver x litres per minute, and some lovely carbon-based life forms move in, and the whole thing goes out the window.

'I don't like this basin because it's like being dribbled on through a straw, let's pull the restrictor out, I don't like this shower; let's put a different shower head on. All of a sudden, your hot water system's undersized, and you've got NHBC knocking on the door saying your designs are rubbish."

Danielle Michalska-Morris said the risk of customers replacing appliances was "just as critical in new builds."

John Slaughter advocated consumer KPIs built in alongside regs and labelling to ensure the new regime was realistic. "One of the things we recommended in our April 2024 Water Ready report is that there should be a compulsory consumer aspect in the new regime; that you should have consumer KPIs built in.

Tom Reynolds added: “I think we should be looking at water performances, in order to give water the parity with energy that's required.” You know, wastewater heat recovery should just be a given now, and it does come down to cost. But what's the cost if we don't make these interventions?

The chair James Parker asked: Does there need to be the aspirational side for customers as well as stressing the financial benefits? Reynolds countered: “Water scarcity is terribly badly understood, because it is a looming threat.”

Tony Gordon of Showersave said that regarding the Home Energy Model, and the likelihood of the cheaper Option 2 for designs being adopted, as well as the assumptions around usage were challenged by delegates. “We don't know for sure when the results will come out from consultation, but anecdotally, I haven't heard of anyone promoting the cheaper option because it's just not sustainable moving forward, and it won't allow us to hit the carbon targets that are required.”

Gordon added: “There are huge discrepancies, as you would imagine, in terms of the Home Energy Model as it currently stands, and there are some challenges already that we have identified in terms of the kind of beta modelling that's out there that needs addressing, and that's going to take time to put that right. It's really interesting just listening to the consensus around the table, on the need for a joint government on regulations; they are the baseline everyone wants to achieve.”

The chair then asked the rhetorical question: “Those regs shouldn’t be seen as a maximum, right?” Tony Gordon agreed: “Absolutely, but Part G and Part L, they're different, and the consultations happen at different times.”

Danielle Michalska-Morris from Barratt Homes confirmed that even in the latest version of SAP, “showering assumptions are incorrect, so we’re heavily penalised on the actual result. If we add an extra shower in.” Vistry’s Jack Brayshaw agreed: “So you’re encouraging your customers to use a bath rather than a shower.”

Nathan Richardson: “The last time I looked at it, occupancy was based on 2019 levels, and post pandemic, domestic water use has skyrocketed. Andrew Tucker confirmed that ‘water resource’ zones in commuter belts were “under more pressure than they were pre-pandemic, because you've got people working from home and not commuting.”

A reuse future

The debate also touched on the importance of water reuse, including rainwater harvesting, and how some areas of the UK were more proactive than others. John Slaughter said that “another part of revising regulations is to make it more possible to use those technologies and solutions and there are barriers. So in principle the Government is going to move forward on those things.

While sustainability advocate Nigel Griffiths was fervently in support, Jack Brayshaw of Vistry cautioned that home sales could be hit with customers being averse to taking on the risk of maintenance of such systems.

Experts from across the sector explored the likely nature of the new landscape for housebuilders following the consultation on Part G

Wales-based civil engineer Neil Williams said that he has experienced developers saying they would not accept responsibility, saying ‘We’ve got no use for the water,’ but added that “local authorities don't accept this anymore.” He added that this “really does put the onus on us as designers or consultants and developers to think harder on reuse and saving right at the start,” and that the implementation of Schedule 3 “will potentially do the same in England.”

Nigel Griffiths said there was a fundamental issue with developers not being the recipients of savings, but being required to put up the upfront costs: “You said roughly, we're looking at something like a 15 to 20 year payback for rainwater harvesting the new buildings, the problem is that you've got a developer paying and a customer reaping the savings. But we have the same issue with all kinds of energy related considerations including improving the building fabric. I think we've got to get used to that with water as well, that developers are going to have to put a bit more in up front, and the customer is going to end up saving.”

Jack Brayshaw gave the sobering verdict on the prognosis for rainwater harvesting based on life-cycle cost. With 65% of Vistry’s business being partnerships with housing associations and registered social housing providers, taking on more maintenance responsibility affects Vistry’s potential number of units delivered. “it’s their asset they have to maintain, and they have life-cycle costs they have to budget against. It means they don't buy more homes from us because they've only got a set budget to work with. That's the type of barrier that we need to try and break down – it's the overall life cycle cost of these systems.

However, Naomi Sadler put a strong case for how including carbon savings could increase the overall cost efficiencies for developers, and that if "tied into bills" they would have an increased incentive to buy properties where carbon savings using lower water use appliances could be guaranteed. "When the homeowner comes to buy a house and it's got those products installed, they know that they're going to make a saving. So if you said, for example, that say one gram of CO_2 equals one litre, you include it in planning applications, and the developer looks at rainwater harvesting and greywater recycling, if I equate that into a CO_2 saving, and then instead of just focusing on energy, I then bring in the water as well, and that's how many tons of carbon that I'm saving. Instead of whacking on a load more PV, maybe developers might consider looking at rainwater harvesting; it becomes more cost effective."

We would like to thank our sponsors Showersave, Triton Showers and Hansgrohe International for supporting Building Insights LIVE.

INDUSTRY RECOMMENDATIONS

Our attendees provided a recommendation each for the construction industry to adopt, in order to drive forward improvements in specification of water and energy saving appliances for new homes.

- **Tom Reynolds, BMA:** Proceed with mandatory unified water labelling of products, but don't reinvent the wheel, use what's already there.
- **Jeff House, Baxi:** Look at how we regulate water use the same way as we do energy, and whether that forms part of a home energy rating of some kind.
- **John Slaughter, Future Homes Hub:** Committing to ongoing collaboration is really important; developers, supply chain, and the skills side working together to develop practical solutions. This needs to then be fed to the Government so it makes decisions on a sensible basis.
- **Andrew Tucker, Thames Water:** From the majority of developers we work with, the message is 'please keep it simple.' Ditch the per person per day in any metric or requirement, as we now know it's not fit for purpose. Use the fittings approach, link it to the label, find options for getting reuse into the equation.
- **Tony Gordon, Showersave:** Waste water Heat recovery should be considered as a mandatory energy saving measure in the same way as insulation and air tightness!
- **Nathan Richardson, Waterwise:** Get involved in the forthcoming national campaign on saving water, look at Home Information Packs, and stop spec'ing toilets with confusing dual flush buttons!
- **Dan Lintell, Triton Showers:** Focus on the positives, and the art of the possible, and make it personal and relatable. That's what will drive change.
- **Kevin Wellman, Chartered Institute of Plumbing & Heating Engineering:** Need to mandate training, whether CPD or education, and a fair and equitable licence scheme so it's a level playing field for everyone.
- **Naomi Sadler, Sadler Energy & Environmental Services:** I'd like a way to bring water into everyone's minds, and which provides more flexibility in how we meet carbon emissions, because getting every litre of water to your door has a carbon impact.
- **Nigel Griffiths, Sustainability Expert:** Rainwater harvesting is a no-brainer, and we do need to look again at whole-house certification systems.
- **Simon Gibbins, Hansgrohe International:** We need a mandatory water label and to make it compulsory at point of sale.
- **Richard Lupo, SHIFT Environment:** Post-construction checks on water fittings need to be carried out – there is clearly no mechanism in place to do this. And a nationwide campaign about water efficiency is needed – led by the Government.
- **Danielle Michalska-Morris, Barratt Homes:** Educate the consumer, even if we have the certificates and labels, if the consumer doesn't know what to do with it, we will fail. We need to bring them on board somehow.
- **Jack Brayshaw, Vistry Group:** Regulations should become more stringent and we need to innovate to meet them, and make sure we're not hitting our customer experience; regulations will only get us so far because consumer behaviour is crucial.