

WATER EFFICIENCY IN NEW HOMES

Evidence to support adoption of the Building Regulations Optional Requirement for local authorities in North West England and the Midlands

Background

Water is essential for life - yet here in the UK (as in many regions across the world) the future availability of water is a concern. In the most recent determination of water stress for England, major parts of the area covered by Water Resources West are described by the Environment Agency as being under ‘serious water stress’. Water scarcity/stress occurs when demand is high compared to the water that is available¹.

Population growth, climate change and environmental protection measures all put pressure on water resources and contribute to water stress in our region. On top of this, housing shortages mean that lots more housing is needed today and in the future. Hence, planning policy is a vital tool to help ensure long term sustainable management of water supplies, as well as helping protect our local rivers and wildlife. Achieving a balance between these conflicting demands is a challenge for us all.

Water Efficiency Standards for New Homes

The Code for Sustainable Homes was launched in 2006 to help reduce UK carbon emissions and create more sustainable homes; it was the national standard for use in the design and construction of new homes in the UK and is still referred to in older Local Plans. In 2015 it was withdrawn and some of its standards were consolidated into Building Regulations including the requirement for all new dwellings to achieve a water efficiency standard of 125 litres of water per person per day (l/p/d). In the same year, the Government updated Building Regulations Part G, introducing an ‘optional’ requirement of 110 l/p/day for new residential development, which should be implemented through local policy where there is a clear need based on evidence. (See [Appendix 1](#)).

In 2018, Welsh Government amended building regulations so that new builds are built to a standard of 110 l/p/d². In England however the standard of 110 l/p/d needs to be adopted as a local policy by each planning authority in its local plan before it can take effect.

In 2020, the government published a White Paper on future planning³ in England. The focus is on clear requirements and standard approaches. It clear that water will remain an important consideration and that “sustainable development” will be a key test.

Recent views on water efficiency standards and Government’s support for water efficiency labelling

In July 2021, the Government announced new measures⁴ to balance the growing demand on water supplies with the ambitions in its 25 Year Environment Plan to achieve clean and plentiful water. This was in response to a consultation on measures to reduce personal water use⁵. The majority of respondents thought the current standards were not effective and that the Building Regulations should mandate a tougher standard (removing the optional standards at the discretion of local authorities). This standard was perceived as being achievable. Part of the Government’s response is to encourage local authorities to adopt a tighter standard of 110 litres per person per day.

¹ [Water stressed areas – final classification](#), Environment Agency and Natural Resources Wales, July 2021

² [The Building \(Amendment\) \(Wales\) Regulations 2018](#)

³ [Planning for the future](#), Ministry of Housing, Communities and Local Government, August 2020

⁴ [Reducing demand for water](#), Statement made to UK Parliament on 1 July 2021

⁵ [Consultation on measures to reduce personal water use](#), Summary of Responses, Defra, July 2021.

The Government also committed to develop a roadmap towards greater water efficiency in new developments and retrofits, including the exploration of revised building regulations and how the development of new technologies can contribute to meeting these standards.

In further recognition of the need for water efficiency, the government also announced that it would make regulations to introduce a mandatory water efficiency label to inform consumers and encourage the purchase of more water efficient products for both domestic and business use. Water Resources West welcomes and supports these measures by the government. The reductions in water demand we need to maintain sustainable supplies can only be met by a combination of action from water companies, national and local government, developers and consumers.

The Need for Water Efficiency in New Homes

The Water Framework Directive (WFD) was adopted into UK Law in 2003. It was designed to change water management for the better by putting aquatic ecology at the heart of all management decisions. One of the most important features of the WFD is that it encourages public consultation, meaning everyone can have a say in what is needed to protect our water resources. It also takes into account the environmental, economic and social implications of any such investment/decisions.

Delivery of the WFD objectives in our region is set out in River Basin Management Plans for the Solway Tweed, North West, Dee, Severn and Humber River Basins. These documents highlight a number of issues that are affecting the achievement of the WFD objectives, one of these is the pressures from water supply. Thus, there are a variety of reasons why water efficiency is important for Local Authorities.

Local Authorities have a duty of care for communities and the environment and the reduction in water use can help to minimise the quantity of water taken from the environment as well as helping to control customer bills. There are some important factors to consider in this regard:

- The general Duty to Co-operate⁶ can also apply to water efficiency and, across the region, there are several examples of exemplar project partnerships between Local Authorities and water companies.
- The National Planning Policy Framework⁷ Section 2 requires strategic policies to make sufficient provision for water supplies. Section 14 of the NPPF concerns “Meeting the challenge of climate change, flooding and coastal change” and paragraph 149 make specific reference to water supply within this context. Paragraph 170 goes on to set out that planning policies and decisions should contribute to and enhance the natural and local environment including water. For reference we have included specific government guidance in relation to the optional standard in [Appendix 2](#).
- Local Authorities must “have regard to the River Basin Management Plans and any supplementary plans in exercising their functions” and this includes taking action on water efficiency.
- The production of mains water requires significant energy and chemical inputs and hence reducing demand for water can contribute significantly to reducing carbon emissions, especially where those savings are of hot water.

Why do we need to save water?

In March 2020, the Environment Agency published the National Framework for Water Resources⁸. This identifies strategic water needs for England and its regions across all sectors up to and beyond 2050. The National Framework identifies that our region faces the second highest pressures on Water Resources. Significantly, the National Framework identifies that increased consumption, driven by population increases, is the largest driver of additional water need in the region. Increased public water supply drought resilience,

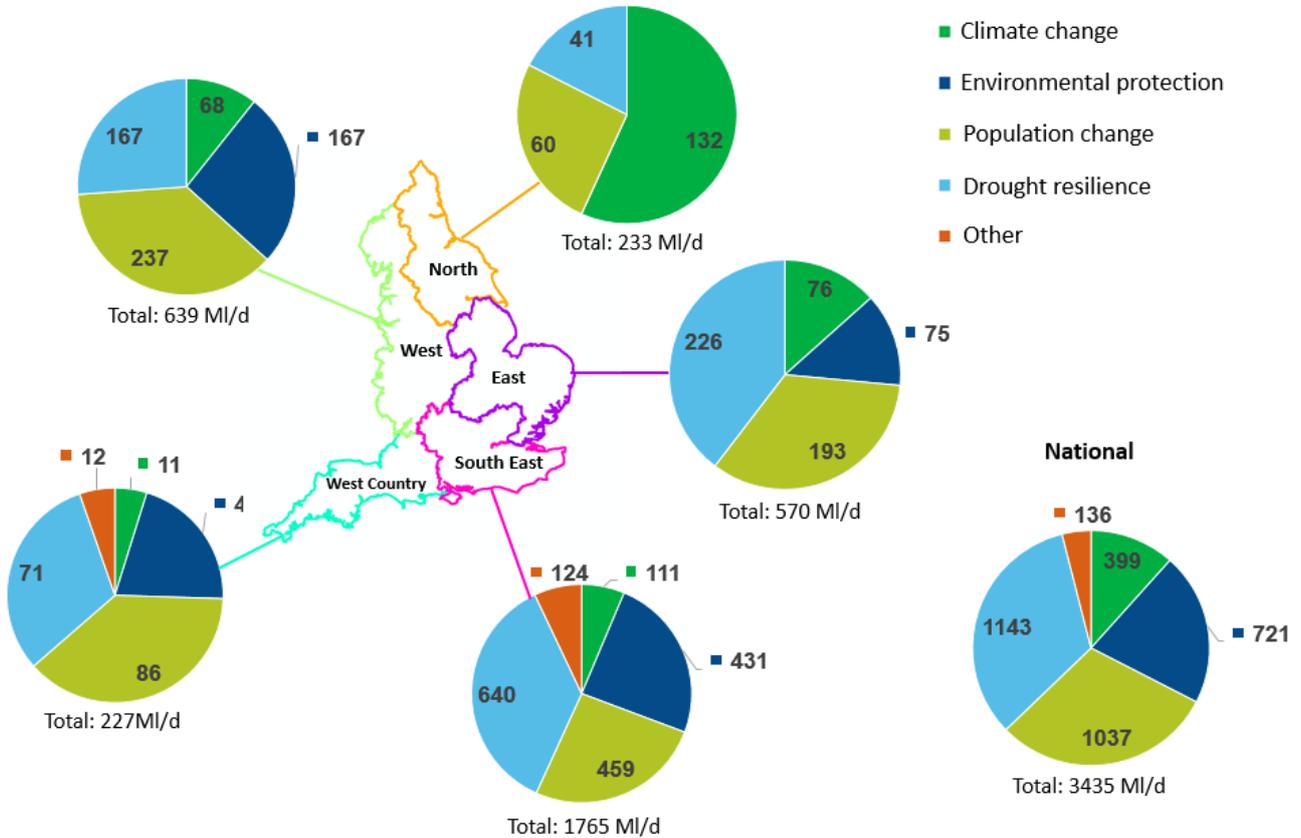
⁶ [Section 110 of the Localism Act](#) sets out the ‘Duty to Co-operate’. It requires cooperation between local planning authorities and other public bodies to maximise the effectiveness of policies for strategic matters in Local Plans. Even if the formal duty is removed in future legislation, the August 2020 White Paper³ makes it clear that strategic, cross-boundary issues should still be considered in the context of sustainable development.

⁷ [National Planning Policy Framework](#), Ministry of Housing, Communities & Local Government, February 2019

⁸ [Meeting our future water needs: a national framework for water resources](#), Environment Agency, March 2020

increased protection for the environment and the impact of climate change reducing water availability of existing supplies also have impacts on water availability (Figure 1).

Figure 1. Extract from the National Framework showing how population growth results in Water Resources West having the second highest pressure on water resources in England. Numbers in the pie charts show the additional water needed by 2050 due to different drivers (in MI/d).



Based on the best available evidence from WRMP19, the National Framework adopted a planning assumption of reducing *average* per capita consumption (PCC) to 110 l/p/d by 2050 nationally. Water Resources West’s projections are broadly consistent with that, with average per capita consumption reducing towards 110 l/p/d by 2050⁹. These projections are based on forecasts made for the water companies’ 2019 WRMPs. Even with these reductions in consumption, parts of our region will need new water resources to be developed⁹. If the planned reductions are not achieved then more significant and more costly water resources will need to be developed. It is therefore important the measures are taken across the region to support the achievement of the lower per capita consumption.

As of July 2021, more than half the area covered by Water Resources West in England is classed as being under ‘serious water stress’ by the Environment Agency (Table 1). This represents an increase in water stress when compared to previous classification undertaken in 2013, where our region was deemed to be under medium water stress. The update is based on the most recent data available to regulators from water companies’ water resources management plans (WRMPs) published in 2019. The new data affords a better understanding of water resources needs across England in light of updated climate change impact forecasts on supplies as well as updated demand profiles.

⁹ [Initial Resource Position](#), Water Resources West, March 2020

Table 1. Water Stress Classification for the water companies in the English part of our region.

Water company area	Current Stress*
Severn Trent	Serious water stress
South Staffs Water	Serious water stress
United Utilities	Not stressed

Public concern also highlights the need to support water saving. Surveys¹⁰ of water users in North West England and the Midlands have shown that, while there is little general awareness of the issues, once informed 70% are concerned about water scarcity. In addition to running out of water, customers are worried about the potential impact on water bills, restrictions and wastage.

Water Framework Directive requirements are set out in River Basin Management Plans. Water efficiency measures have a direct effect in reducing the abstraction from water bodies assessed in those plans. Abstraction in turn affects the hydrological regime of those water bodies. River Basin Management Plans for the Solway Tweed, North West, Dee, Severn and Humber River Basins identify that there are waterbodies within all those areas for which the hydrological regime does not support good status. In turn the hydrological regime can affect water quality, species and habitats.

Changes to the natural flow and level of water is identified as a significant water management issue. Reduced flow and water levels in rivers and groundwater caused by human activity (such as abstraction) can mean that there is not enough water for people to use and wildlife might not be able to survive. Reduced flow affects the health of fish and exaggerates the impacts of barriers such as weirs.

Table 2. WFD classification of waterbodies in 2015 River Basin Management Plans

River Basin District	Percentage of surface water bodies not achieving good ecological status or potential	Percentage of groundwater bodies not achieved good quantitative status
Solway Tweed ¹¹	54% (305 out of 560)	28% (18 out of 64)
North West ¹²	78% (480 out of 613)	11% (2 out of 18)
Humber ¹³	86% (839 out of 987)	25% (13 out of 51)
Severn ¹⁴	80% (604 out of 755)	21% (9 out of 42)
Dee ¹⁵	73% (68 out of 93)	0% (0 out of 5)

While local planning authorities are encouraged to draw on this existing evidence to establish the need for possible action government makes clear that this should not be the only consideration¹⁶ – not least because current maps were not developed to establish areas where additional controls were required on new homes. A requirement for a higher water efficiency standard within a local plan should also follow on from

¹⁰ [Customer Survey for Severn Trent, Thames Water and United Utilities](#), Verve, July 2018

¹¹ [River basin management plan for the Solway Tweed river basin district: 2015 update](#), Environment Agency and Natural Scotland, 21 December 2015

¹² [River basin management plan, Part 1: North West river basin district](#), Environment Agency, December 2015

¹³ [River basin management plan, Part 1: Humber river basin district](#), Environment Agency, December 2015

¹⁴ [River basin management plan, Part 1: Severn river basin district](#), Environment Agency, December

¹⁵ [Dee River Basin Management Plan 2015 – 2021, Proposed Summary](#), Natural Resources Wales and Environment Agency, October 2015

¹⁶ [Housing Standards Review Consultation](#), Department for Communities and Local Government, August 2013

consultation with the local water supplier and the Environment Agency. Additional reasons for the local need for action highlighted by the Environment Agency and the local water suppliers are set out below.

Summary of evidence on the need for the optional water efficiency standard

As we have seen above, there is a range of evidence on the water stress across our region. This means there is a clear need for the 110 l/p/d water efficiency standard.

For inclusion in a local plan a local planning authority must be able to demonstrate, at examination of the plan, that the standard is required to address a clear need and as part of an approach to water efficiency that is consistent with a wider approach to water efficiency as set out in the local water undertaker's water resources management plan. We recommend that the following evidence is cited:

- The classification of serious water stress for the water supplier in your area (see Table 1)¹.
- The National Framework for water resources noting that Water Resources West faces the second highest pressures on water resources in England, largely due to population growth⁸.
- The National Framework for water resources planning assumption of 110 l/p/d⁸.
- The consistency between these planned reductions in consumption between the National Framework, Water Resources West's plan and your water supplier's WRMP⁹.
- High levels of public concern (70%) in the region, when informed about issues of water scarcity¹⁰.
- Reference to the WFD ecological status of water bodies in your River Basin District, with changes to flow and level recognised as a significant water management issue in the River Basin Management Plan (Table 2).

Water Companies

A consequence of the population and housing growth in our region has meant that water companies have been asked to accommodate the new growth, yet at the same time their abstraction licenses are being reduced. Therefore it is vital that water companies support and are supported in initiatives to help get 110 l/p/d in planning policies across local authorities in the region, to help meet their requirement to supply their customers. The water companies in Water Resources West are Dwr Cymru Welsh Water, Severn Trent, South Staffs and United Utilities.

In preparing your local plan you should consult with your local water supply company on specific local issues which may influence your decision on whether the 110 l/p/d should be applied, even if the area is not classed as being under 'significant water stress'.

New Homes

The scale of new development that is needed across our region is immense - the Government aiming for delivery of 300,000 new homes a year across England¹⁷. Within Water Resources West's region we estimate that there will be 1.6 million new properties by 2050. Yet at the same time there is need to share the already scarce water resources - therefore the need for implementing at least 110 l/p/d into local plans and policies is apparent. This argument is further emphasised by the Government's July 2021 announcement on a range of measures to support the delivery of the 110 l/p/d target by 2050.

Impact on viability

The cost of installing water-efficient fittings to target a per capita consumption of 110l/d has been estimated as a one-off cost of £9 for a four bedroom house¹⁸. Research undertaken for the Welsh Government indicated potential annual savings on water and energy bills for householders of £24 per year as a result of such water efficiency measures¹⁹.

The Consumer Council for Water notes that the discretionary, tighter (building) standard of 110 l/p/d is something that should be pursued, also bearing in mind that saving water is not the only a driver of water

¹⁷ [Planning for the Future](#), Ministry of Housing, Communities and Local Government, March 2020

¹⁸ [Housing Standards Review Cost Impacts](#), Department for Communities and Local Government, September 2014

¹⁹ [Advice on water efficient new homes for England](#), Waterwise, September 2018

efficiency²⁰. This is because water efficiency could also have a positive effect on reducing energy bills, water bills of metered customers and carbon emissions.

The Greater London Authority carried out a survey of developers to test the viability of the 110 l/p/d standard. The results of this survey²¹ made it clear that those associated with the development industry did not consider that the proposed changes would have any impact on building.

Viability is also evidenced by the examples from other local authorities who have adopted the standard. South Worcestershire adopted the 110 l/p/d standard in its February 2016 local plan. The standard remains the preferred option for next local plan. See the case study below. Bromsgrove and Redditch councils cooperated to require the 110 l/p/d standard for certain developments in their plans which were adopted in January 2017. Another example is Nottingham City Council who adopted the 110 l/p/d standard for all new dwellings in January 2020.

Water efficiency is therefore not only viable but of positive economic benefit to both private homeowners and tenants.

Water Calculator

The Water Calculator was developed to help provide a working example of the calculator used for part G of the building regulations. It uses the method set out in the ‘Water Efficiency Calculator for New Dwellings’²². The Water Calculator contains information on water consumption for hundreds of products, enabling quick and easy specification, without the hassle of gathering data from several product manufacturers. To access the water calculator visit: www.thewatercalculator.org.uk

Case study

South Worcestershire’s current local plan was adopted, following examination, in February 2016²³. It is a major sub-regional land use plan, prepared jointly by the three South Worcestershire Councils; Malvern Hills, Worcester City and Wychavon working together. Within the local plan, policy SWDP30c states that “for housing proposals, it must be demonstrated that the daily non-recycled water use per person will not exceed 110 l/p/d”. The reasoned justification for this policy highlights the following factors:

- This policy is central to the council’s response to the Framework, which advocates that local plans incorporate strategies to mitigate and adapt to climate change, in line with the objectives and provisions of the Climate Change Act 2008 over the longer term. This includes factors such as flood risk, water supply and changes to biodiversity.
- Without effective local planning and risk management, the consequences of climate change may also have a significant detrimental impact on budgets and service delivery. It may also compromise the Government’s ability to meet the statutory requirements under the Climate Change Act 2008.
- Local planning authorities have a general responsibility not to compromise the achievement of United Kingdom compliance with the Water Framework Directive (WFD(68)) (Directive 2000/60/EC). More specifically, the local plan has to take into account the River Severn Basin Management Plan, which in itself is a requirement of the WFD. All surface water bodies need to achieve “good ecological status” by 2015.
- The Localism Act 2011 enables the UK government to require local authorities to pay if their inaction results in a failure to meet WFD requirements.
- The Localism Act 2011 also requires local planning authorities to co-operate on strategic cross-boundary matters, for example the provision of water supply infrastructure, water quality, water supply and enhancement of the natural environment. Consequently, there is a need for developers to

²⁰ [Response to Defra consultation on measures to reduce personal water use](#), Consumer Council for Water, October 2019

²¹ [Greater London Authority Housing Standards Review: Evidence Of Need](#), David Lock Associates, May 2015

²² Appendix A of [Approved Document G, The Building Regulations 2010](#), HM Government 2015 edition with 2016 amendments

²³ [South Worcestershire Development Plan, Adopted](#), February 2016.

engage positively with the local water supplier to ensure that all the necessary infrastructure is secured, so as to ensure that there is no deterioration in the quality or quantity of water of the receiving water body(ies) and to avoid delays in the delivery of development.

- The 2006 Natural Environment and Rural Communities (NERC) Act imposes a duty on local planning authorities to have regard to conserving biodiversity in carrying out all of their functions.
- The South Worcestershire Water Cycle Study looks at the level of planned growth and the ability of the infrastructure (i.e. water supply and waste water treatment) to accommodate it without adversely affecting the natural water cycle. It identifies an overall shortage in future water supplies that necessitates the delivery of minimum water efficiency targets.
- The effective management of water is considered critical in the pursuit of sustainable development and communities. It reduces the impact flooding can have on the community, maintains water quality and quantity and helps to enhance local amenity / property value and biodiversity through the provision of Green Infrastructure. Effective water management also reduces the movement of water and sewage, thereby reducing energy requirements. Development proposals incorporating grey water recycling will therefore be supported and opportunities for the retrofitting of water efficiency measures will be encouraged.

The South Worcestershire Councils are currently preparing the next local plan. Following consultation its Preferred Options report²⁴ was published in November 2019. In relation to water efficiency the preferred option is to require new dwellings to meet the tighter Building Regulations optional requirement of 110 l/p/d as per the adopted policy.

Recommendations

There is firm evidence in across the North West and the Midlands that clearly justifies the need for more stringent water efficiency targets for new residential development. Local Authorities should consider all the factors in their local plans and we strongly recommend they adopt 110 l/p/d for water efficiency using the suggested wording below:

All new residential development must achieve as a minimum the optional requirement set through Building Regulations for water efficiency that requires an estimated water use of no more than 110 litres per person per day.

Past experience has shown that successful adoption of 110l/p/d in local plans requires the following:

1. Significant engagement and consultation is required in developing local plans, including engagement with key stakeholders and public sector partners, responsible for delivering a range of services and infrastructure.
2. Recommend local plans are subject to public consultations (many people are concerned about water) and that where appropriate, comments from the public help shape the contents of this plan and helps with public buy-in.
3. Local plans should actively encourage the design of new buildings that minimise the need for energy and water consumption, use renewable energy sources, provide for sustainable drainage, support water re-use and incorporate facilities to recycling of waste and resources.
4. Local plans should have a positive approach to the adaptation of climate change –
 - by avoiding development in areas at greatest risk of flooding, and
 - promoting sustainable drainage, and
 - challenging water efficiency standards.

²⁴[South Worcestershire Development Plan Review, Preferred Options Consultation](#), November 2019.

Appendix 1. Extract from Part G of the Building Regulations

Extract from Part G of Building Regulations

Optional requirement

2.8 The optional requirement only applies where a condition that the dwelling should meet the optional requirement is imposed as part of the process of granting planning permission. Where it applies, the estimated consumption of wholesome water calculated in accordance with the methodology in the water efficiency calculator, should not exceed 110 litres/person/day.

2.9 The person carrying out the work must inform the **BCB** where the optional requirement applies.

2.10 As an alternative to calculating the water consumption (as paragraph 2.8), a fittings approach that is based on the water efficiency calculator methodology may be used.

2.11 Where the fittings approach is used, the water consumption of the fittings provided must not exceed the values in Table 2.2. If they do, the water efficiency calculator must be completed to demonstrate compliance. Similarly, where a shower is not to be provided or where a waste disposal unit, a water softener or water re-use is to be provided the water efficiency calculator must be completed.

2.12 Where the fittings approach is used, the notice given under regulation 37 should state "Less than 110 litres/person/day using fittings approach".

Table 2.2 Maximum fittings consumption optional requirement level

Water fitting	Maximum consumption
WC	4/2.6 litres dual flush
Shower	8 l/min
Bath	170 litres
Basin taps	5 l/min
Sink taps	6 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram



Appendix 2 NPPF Planning Practice Guidance Housing: optional technical standards, Water efficiency standards²⁵

Can local planning authorities require a tighter water efficiency standard in new dwellings?

In setting out how the planning system should contribute to the achievement of sustainable development, the National Planning Policy Framework and guidance makes clear this includes planning to provide the high quality housing required to meet the needs of present and future generations, and helping to use natural resources prudently. The Framework's policies expect local planning authorities to adopt proactive strategies to adapt to climate change that take full account of water supply and demand considerations. Early engagement between local planning authorities and water companies can help ensure the necessary water infrastructure is put in place to support new development. See [water supply guidance](#). The local planning authority may also consider whether a tighter water efficiency requirement for new homes is justified to help manage demand.

Paragraph: 013 Reference ID: 56-013-20150327

Revision date: 27 03 2015

What standard should be applied to new homes?

All new homes already have to meet the mandatory national standard set out in the Building Regulations (of 125 litres/person/day). Where there is a clear local need, local planning authorities can set out [Local Plan](#) policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day.

Paragraph: 014 Reference ID: 56-014-20150327

Revision date: 27 03 2015

How should local planning authorities establish a clear need?

It will be for a local planning authority to establish a clear need based on:

- existing sources of evidence.
- consultations with the local water and sewerage company, the Environment Agency and catchment partnerships. See [paragraph 003 of the water supply guidance](#)
- consideration of the impact on viability and housing supply of such a requirement.

Paragraph: 015 Reference ID: 56-015-20150327

Revision date: 27 03 2015

What are the existing sources of evidence?

Primary sources of evidence which might support a tighter water efficiency standard for new dwellings are:

- The Environment Agency [Water Stressed Areas Classification \(2013\)](#) which identifies areas of serious water stress where household demand for water is (or is likely to be) a high proportion of the current effective rainfall available to meet that demand.
- Water resource management plans produced by water companies.
- [River Basin Management Plans](#) which describe the river basin district and the pressure that the water environment faces. These include information on where water resources are contributing to a water body

²⁵ <https://www.gov.uk/guidance/housing-optional-technical-standards#water-efficiency-standards>

being classified as ‘at risk’ or ‘probably at risk’ of failing to achieve good ecological status, due to low flows or reduced water availability.

In addition to these primary data sources, locally specific evidence may also be available, for example collaborative ‘water cycle studies’ may have been carried out in areas of high growth.

Paragraph: 016 Reference ID: 56-016-20150327

Revision date: 27 03 2015

Where can I find out more about the water efficiency standard?

See further information on the [water efficiency standard](#).

Paragraph: 017 Reference ID: 56-017-20150327

Revision date: 27 03 2015