



**Consultation on: The Building Act 1984, The Building  
Regulations 2000**

Impact Assessment of Amending Part G (Hygiene) of  
the Building Regulations and the Revision to Approved  
Document G

**Impact Assessment**





**Consultation on: The Building Act 1984, The Building  
Regulations 2000**

Impact Assessment of Amending Part G (Hygiene) of  
the Building Regulations and the Revision to Approved  
Document G

**Impact Assessment**

Communities and Local Government  
Eland House  
Bressenden Place  
London  
SW1E 5DU  
Telephone: 020 7944 4400  
Website: [www.communities.gov.uk](http://www.communities.gov.uk)

© Crown Copyright, 2008

*Copyright in the typographical arrangement rests with the Crown.*

*This publication, excluding logos, may be reproduced free of charge in any format or medium for research, private study or for internal circulation within an organisation. This is subject to it being reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the publication specified.*

Any other use of the contents of this publication would require a copyright licence. Please apply for a Click-Use Licence for core material at [www.opsi.gov.uk/click-use/system/online/pLogin.asp](http://www.opsi.gov.uk/click-use/system/online/pLogin.asp), or by writing to the Office of Public Sector Information, Information Policy Team, Kew, Richmond, Surrey TW9 4DU

e-mail: [licensing@opsi.gov.uk](mailto:licensing@opsi.gov.uk)

If you require this publication in an alternative format please email [alternativeformats@communities.gsi.gov.uk](mailto:alternativeformats@communities.gsi.gov.uk)

Communities and Local Government Publications  
PO Box 236  
Wetherby  
West Yorkshire  
LS23 7NB  
Tel: 08701 226 236  
Fax: 08701 226 237  
Textphone: 08701 207 405  
Email: [communities@capita.co.uk](mailto:communities@capita.co.uk)  
Online via the Communities and Local Government website: [www.communities.gov.uk](http://www.communities.gov.uk)

**75% recycled**

This is printed on  
75% recycled paper

May 2008

Product Code: 08BD05298

ISBN: 978-1-8511-0000-2

## Contents

<b>Summary: Intervention &amp; Options</b> – Impact Assessment of a revision to Approved Document G to the Building Regulations 2000 (England and Wales)	5
<b>Summary: Analysis &amp; Evidence</b> – Update of Part G and the associated guidance, and implement water efficiency policy	7
<b>Evidence Base (for summary sheets)</b> – Updating Part G and the Associated Technical Guidance	9
<b>Specific Impact Tests: Checklist</b> – Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.	17
<b>Summary: Intervention &amp; Options</b> – Hot Water Safety – Impact Assessment of a revision to Approved Document G to the Building Regulations 2000 (England and Wales)	21
<b>Summary: Analysis &amp; Evidence</b> – Introduce a Requirement on the control of hot water temperature to baths in new dwellings	23
<b>Summary: Analysis &amp; Evidence</b> – Introduce a Requirement on the control of hot water temperature to showers and taps in new dwellings	25
<b>Summary: Analysis &amp; Evidence</b> – Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use	27
<b>Summary: Analysis &amp; Evidence</b> – Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and in dwellings created by a change of use	29
<b>Summary: Analysis &amp; Evidence</b> – Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use and replacement baths	31
<b>Summary: Analysis &amp; Evidence</b> – Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and dwellings created by a change of use and replacement showers and taps	33
<b>Evidence Base (for summary sheets)</b> – What might the Building Regulations provide to reduce the health and safety risks associated with hot water from sanitary fittings	35

<b>Specific Impact Tests: Checklist</b> – Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed	50
<b>Annex A</b> – Control of hot water temperature from sanitary fittings: detailed health impact assessment and analysis of the cost of scald injuries	54
<b>Annex B</b> – Treatment Costs	65

## Summary: Intervention & Options

<b>Department /Agency:</b> <b>Communities and Local Government</b>		<b>Title:</b> <b>Impact Assessment of a revision to Approved Document G to the Building Regulations 2000 (England and Wales)</b>	
<b>Stage:</b> Consultation	<b>Version:</b> 1.0	<b>Date:</b> April 2008	
<b>Related Publications:</b> The proposed new edition of Approved Document G: Sanitation, Hot Water Safety and Water Efficiency			

### Available to view or download at:

[www.communities.gov.uk](http://www.communities.gov.uk)

**Contact for enquiries:** Mike Johnson/Guy Bampton    **Telephone:** 020 7944 5745/5725

### What is the problem under consideration? Why is government intervention necessary?

- 1) The current Part G of the Building Regulations and the associated guidance was produced in 1992, many references have been superseded and the guidance does not reflect current practice in a number of areas.
- 2) A number of recent scalding incidents resulting from the failure of aspects of hot water systems have highlighted the need to ensure that established good practice in relation to the safety of these systems is reflected in Regulations.
- 3) The growth in water demand, and the further risks to supply resulting from climate change, requires action to improve the water efficiency of new homes (in line with Government policy announced in July 2007).

### What are the policy objectives and the intended effects?

The policy objectives of 1) above are to ensure that better support is provided to the industry in their efforts to comply with the Building Regulations and as a result ensure better water hygiene and safety for building occupants.

The policy objective of 2) above is to ensure that established good practice is supported by our guidance and Regulations and that as a result the possibility of hot water system failures in the future is minimised.

The policy objective of 3) above is to implement the Government's water efficiency policy adopted in July 2007, for improving the water efficiency of new homes and reducing water demand.

**What policy options have been considered? Please justify any preferred option.**

In relation to 1) above the principal option considered has been to update Part G of the Building Regulations and guidance in Approved Document G. A 'do nothing' option has also been considered.

In relation to 2) above the principle option considered has been to reflect current good practice in Part G of the Building Regulations and guidance in Approved Document G. A 'do nothing' option has also been considered.

In relation to 3) the only option considered has been to introduce the water efficiency Requirement, along with an assessment approach, in line with the policy adopted in July 2007. This policy consultation, supporting impact assessment and policy statement can be seen at [www.communities.gov.uk](http://www.communities.gov.uk). The impact assessment of this is not repeated here.

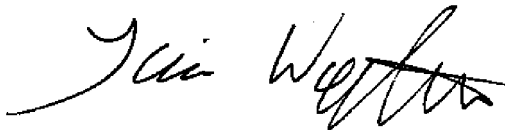
**When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?**

Part G of the Building Regulations and the Approved Document will be subject to an assessment of costs and benefits three years after implementation.

**Ministerial Sign-off** For consultation stage Impact Assessments:

*I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.*

Signed by the responsible Minister:



Date:



What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building control		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£0		
Will the proposal have a significant impact on competition?				
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £0	Decrease of £0	<b>Net Impact £0</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Evidence Base (for summary sheets)

# Updating Part G and the Associated Technical Guidance

## Purpose and intended effect

To update Part G and the associated guidance in Approved Document G with:

- cross-references to other relevant legislation to improve awareness;
- references to current standards and published technical guidance;
- current practice in relation to the particular requirements of the Regulations which this document addresses.

It is intended that the changes will provide users of the Approved Document (AD) with a single source of guidance in relation to the requirements for the situations which this AD addresses, and so will help to assist compliance and consistency of practice across England and Wales.

The policy objectives are:

- to ensure that better support is provided to the industry in its effort to comply with the Building Regulations and as a result ensure better water hygiene and safety for building occupants.
- to ensure that established good practice is supported by the Regulations and that as a result the possibility of future hot water system failures is minimised.
- to implement the Government's water efficiency policy adopted in July 2007, for improving the water efficiency of new homes and reducing water demand.

The changes will affect all those dealing with relevant building work in England and Wales (separate legislation applies in Scotland and Northern Ireland). This may include architects, developers, builders, Building Control Bodies, manufacturers, property owners/occupiers etc.

## Background

The current edition of Approved Document G was produced in 1992 with non-technical amendments issued in 2000. References to other legislation, standards and technical guidance documents have been superseded and the AD directs users to out-dated guidance.

In addition, the AD does not reflect current building and plumbing practice. For example, the provision of sinks with hot and cold water supply in food preparation areas and the ability of cold water cisterns to resist the effects of hot water in the event of discharge by vent pipes.

## Rationale for Government intervention

If the current edition were to remain, implementation of the Building Regulations by developers and installers and the enforcement of the Building Regulations by Building Control Bodies (BCBs) would become increasingly difficult.

Practice across England and Wales would also diverge between local authority areas as local methods of working developed to deal with new issues and development in technology.

## Consultation

The review of Part G and the Approved Document has been conducted by Communities and Local Government in conjunction with the members of the Building Regulations Advisory Committee (BRAC) who are appointed as independent statutory advisors to the Secretary of State. The Part G Technical Working Party steering the review includes members of BRAC and representatives from the manufacturing, plumbing and building development sectors. It also includes a number of seconded experts from Communities and Local Government, Defra and the Devolved Administrations.

A sub-group of specialists in the field of hot water heating systems reviewed the technical detail in Section G3.

This proposal regarding water efficiency was the subject of a full consultation in 2006/7. The results of this consultation can be found in a joint CLG/Defra statement, July 2007 at : [www.communities.gov.uk/documents/planningandbuilding/pdf/WaterEfficiencyNewBuildings](http://www.communities.gov.uk/documents/planningandbuilding/pdf/WaterEfficiencyNewBuildings).

The outcome of this consultation was to introduce new regulations for water efficiency in new dwellings. The proposals take account of the issues raised during the consultation.

## Options

The Options considered are:

### **Option 1     Do nothing**

This option would keep the Approved Document G in its current state, as summarised above in the Background.

### **Option 2     Update of Part G and the associated guidance, and implement water efficiency policy**

Option 2 would update Part G and the associated guidance in Approved Document G with:

- cross-references to other relevant legislation to improve awareness;
- references to current standards and published technical guidance;
- current practice in relation to the particular requirements of the Regulations which this document addresses.

It is intended that the changes would provide users of the AD with a single source of guidance in relation to the requirements for the situations which this AD addresses, and so will help to assist compliance and consistency of practice across England and Wales.

The proposal is also to implement with Part G the water efficiency policy that Government adopted in July 2007 intended to reduce the consumption of water in new dwellings. The proposals are to provide a regulatory requirement, and associated guidance including a method of calculation, for the design and installation of sanitary appliances in new dwellings to meet a maximum water use of 125 litres per person per day.

There are a number of proposed changes to Approved Document G; these are listed below.

The proposed changes to Schedule 1: Part G and to the Approved Document G were reviewed by the Buildings Regulations Advisory Committee (BRAC) Working Party. The Working Party includes manufacturers, developers, architects, installers and representatives of Government including the Devolved Administrations and agencies. The proposed changes were assessed for impact on users of the Approved Document (e.g. building developers, BCBs, manufacturers and installers) and other parties affected by the content (e.g. building owners and users). The BRAC Working Party agreed that these changes should not have any cost impacts as they are simply bringing Approved Document G into line with current practice.

As a result of views expressed by stakeholders, and in recognition that many of these proposed changes reflect current regulatory requirements and standards, a fully costed impact assessment has not been carried out for each of them. However, with our consultation on changes to Part G and this Impact Assessment we will seek wider views on whether this assessment is correct. If consultation responses indicate costs and benefits that should be taken into account, we will incorporate these into a final cost benefit analysis.

<b>Option 2: Update the guidance and references– list of changes proposed</b>		
<b>Section</b>	<b>Change</b>	<b>Comment</b>
Cold Water Services	Introduction of new section to specifically cover cold water services.	Part G previously required cold water to be supplied to WCs, urinals, washing facilities, baths and showers. Other legislation requires water supplied to be wholesome. So, the new Requirement G1(1) specifies those locations where this supply of water should be wholesome. This would not increase the regulatory burden.
	New G1(1) would amend Part G and Approved Document G by requiring wholesome water at sinks and drinking water stations.	Part G previously required cold water to be supplied to WCs, urinals, washbasins, baths and showers. This would extend the provision to sinks and drinking water fountains but would do no more than is currently required by Water Supply (Water Fittings) Regulations and current practice. This would not increase the regulatory burden, but would increase awareness.
	New G1(2) would amend Part G and Approved Document G by allowing for non-wholesome water to be used in buildings.	Use of non-wholesome water for flushing WCs and urinals is not mandatory, but will allow for those who wish to use other technology now and would 'future-proof' Part G with respect to the water efficiency requirements in the Code for Sustainable Homes. This would not increase the regulatory burden but simply provide for greater flexibility.

**Option 2: Update the guidance and references– list of changes proposed (continued)**

Section	Change	Comment
Hot Water Services	New G3(1) would amend Part G and Approved Document G by requiring heated wholesome water at sinks and drinking water stations.	Approved Document G previously required hot water to be supplied to washbasins, baths and showers. This would extend the provision in Approved Document G but this is already required by Water Supply (Water Fittings) Regulations and current practice – no change.
	New G3(2) would amend Part G and Approved Document G by requiring materials and systems for hot water heating to be robust.	The BRAC Working Party sub-group on hot water systems advised that this is current practice in design and testing of products by manufacturers and the installation by plumbers. For example, cold water cisterns are now tested to 100°C for 500 hours. Installation best practice is covered by the Water Regulations Guide – no change.
	G3(3) would amend Part G and Approved Document G by extending the safety precautions to vented systems (previously unvented only).	The BRAC Working Party sub-group on hot water systems advised that this is current practice in design and testing of products, specifically cylinders, by manufacturers and the installation of vented systems by plumbers. Installation best practice is covered by the Water Regulations Guide – no change.
	G3(4) – no change from 1992 edition. Consultation note: This requirement might be removed – this would then be deregulatory.	None
	Accreditation of unvented hot water storage systems.	In the current edition of Approved Document G, unvented systems up to 45kW power input should be accredited to a relevant performance standard. Removal of this provision would be deregulatory. In the current edition of Approved Document G, there is no similar provision for unvented systems above 45kW power input. We believe systems above 45kW but less than 500 litres volume are also provided as packages and therefore it could be a lesser burden to ask for one-off accreditation of a package instead of checking the design of each installed package.

<b>Option 2: Update the guidance and references– list of changes proposed (continued)</b>		
<b>Section</b>	<b>Change</b>	<b>Comment</b>
WCs and associated facilities	G4(4) is new and applies only to buildings other than dwellings.	Cleanability of walls and floors previously only applied to workplaces (see Approved Code of Practice). It is proposed to give the same level of protection to people in other non-domestic buildings. The BRAC Working Party G advised that this is current practice and therefore it would not increase the regulatory burden, but would increase awareness.
Bathrooms	G(5) – no change from 1992 edition	—
Food Preparation areas	Introduction of new section to specifically cover food preparation areas. New G6 would make provision for a kitchen sink.	This introduces the need for a sink for areas where food is prepared but would do no more than is already required by Water Supply (Water Fittings) Regulations and current practice. This would not increase the regulatory burden, but would increase awareness.
Appliances	G7 allows for the effective cleaning of appliances by choice of profile and material.	Part G previously required design to allow effective cleaning of WCs, urinals, and washing facilities. This is being consulted upon.

**CONSULTATION QUESTION 49: There are a number of proposed changes to Approved Document G. Those listed under Option 2 of the Impact Assessment are considered not to be a change in current practice and reflect guidance in standards and the Water Regulations Guide. Do you agree with stakeholder views that that these changes would not lead to additional costs, and are you able to provide additional information on how this?**

## Sectors and groups affected

Building Control Bodies as well as industry (designers, producers, and installers) would have to bear the cost of familiarisation with the new guidance proposed in Option 2. There will be a one-off cost of 1.5 million arising from this familiarisation process.

## Detailed costs and benefits

This section estimates the costs and benefits (a reduction in water used in new dwellings) for the range of options identified in this Impact Assessment. All costs (and benefits) are calculated using central estimates. A ten-year period of analysis has been chosen. In accordance with The Treasury's Green Book guidance, a discount rate of 3.5% has been applied to calculate present values. Costs and benefits are quoted below in present values.

## Benefits

### Option 1

Option 1 would provide no additional benefits.

### Option 2

#### **Non-monetised benefits – Update to Part G and Approved Document**

Approved Document G provides guidance on compliance with Building Regulations in typical building situations. By ensuring that it is up to date and reflects current practice, we can ensure that designers and builders are best placed to comply with the building regulations. By introducing current good practice standards in relation to the safety of hot water systems we can also minimise the possibility of future system failure and ensure that where systems are not safely installed effective action can be taken by BCBs.

## Costs

### Option 1

Option 1 imposes no direct costs, although the benefits realised under Option 2 would be missed. In addition, taking no action would eventually result in the cost to water companies of developing new resources earlier than required under Option 2.

### Option 2

#### *One-off Costs*

Although there will be a small cost of publishing the new edition of Approved Document G, the main implementation cost (one-off costs in year 1) would be the need for training and familiarisation with the new legislative requirement and the amended guidance. An industry sector that would require particular training is the Building Control Bodies (BCBs) who are responsible for enforcing compliance. These can be either local authority building control departments or Approved Inspectors (AIs).

Estimates of the number of people employed by BCBs and an average cost per person for familiarisation and training following changes to the Building Regulations have been provided by members of BRAC. An estimated 4000 people are employed by BCBs in England and Wales (based on a recently published CLG survey of building control bodies (<http://www.communities.gov.uk/documents/planningandbuilding/pdf/surveybuildcontrol1>)).

Training costs will vary according to the size of the organization, with economies of scale allowing cost per person to fall in larger organisations. BCBs employ about 4000 staff. A value of £100 – £300 per person has been proposed by BRAC Working Party members for training costs. £140 per person used in the assessment of impacts for the update to Approved Document B has been adopted, giving a total cost of £560,000.

There will also be training and familiarisation costs for all parts of the construction industry including builders, developers, consultants, installers etc. Most installers will be executing work that complies with the Water Supply (Water Fittings) Regulations 1999 and the guidance set out in the Water Regulations Guide. Many of the changes to Part G are already covered in this guide. This should ease the learning and training burden.

Giving consideration to previous exercise the cost of training and familiarisation related to the changes in Part G are estimated at £ 1.5 million, including the £560,00 costs to Building Control Bodies. These costs would occur in year one and includes both external training and in-house training often using materials from seminars and workshops supported by Government, professional bodies and trade associations.

This cost has been included in this Impact Assessment as a one-off expense in the first year, in practice it is considered to be a general business expense rather than a burden. Good employment practices recommend that at least 1% of the employer's wage bill should be spent on training. Professional institutions that include designers, building control surveyors and project managers in their membership require that at least 20 hours a year are spent on continuing professional development. This indicates that employers in the construction industry should spend at least £7.5m a year on training. Building Regulations are a considered to be a core skill for all building designers and supervisors. It is also possible that some of the cost may be offset by the greater clarity and consistency the proposals would bring.

## Specific Impact Tests: Checklist

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	Results in Evidence Base?	Results annexed?
Competition Assessment	Yes (see below)	No
Small Firms Impact Test	Yes (see below)	No
Legal Aid	Yes (see below)	No
Sustainable Development	Yes (see below)	No
Carbon Assessment	Yes	No
Other Environment	No	No
Health Impact Assessment	Yes (see below)	No
Race Equality	Yes (see below)	No
Disability Equality	Yes (see below)	No
Gender Equality	Yes (see below)	No
Human Rights	Yes (see below)	No
Rural Proofing	Yes (see below)	No

### Specific impact tests

#### Competition Assessment

There are no proposed policy deemed likely to raise any competition concerns.

#### Small Firms Impact Test

Firms spend a significant amount of time keeping up to date with revised and new regulations. The cost of this is likely to be proportionately higher for small firms than large ones. We recognise that the proposed changes to Part G could affect small firms (adversely or positively) even though they are not considered to be a burden generally across industry.

Accordingly, initial soundings were taken on the impact of the proposed measures on small firms. These will be followed up during the consultation period by face-to-face discussions with small firms.

Those affected by these proposals could include: house developers, installers (plumbers and heating engineers) and manufacturers, although there are very few small firms involved in the production of sanitary appliances. Three stakeholder meetings were held prior to commencement of drafting of the revision to Part G to discuss the proposals. It was considered that the niche products market would open up and could be beneficial

to manufacturers offering these products e.g. composting toilets, macerator toilets, solar water heating, rainwater and grey water recycling units.

There are a large number of installers and many sole traders. The availability of up to date, free advice through the Approved Document will better assist these firms comply with Building Regulations. The Institute of Plumbing and Heating Engineers (IPHE) who represent many of these installers (sole traders and journeymen) was involved in the development of the proposed revisions through active membership of the BRAC Working Party G.

Private sector developers vary from multi-nationals to very small firms. The Home Builders Federation and the National House Building Council both have small business forums. The HBF and the NHBC were involved in the development of the proposed revisions through active membership of the BRAC Working Party G.

### **Legal Aid**

It is envisaged that the proposal will have no impact on legal aid.

### **Sustainable Development**

The proposed provisions will assist with sustainable development particularly through the provisions for the installation of more water efficient appliances, reducing water consumed and drainage loading. The change will also underpin the water efficiency initiative of the Code for Sustainable Homes.

### **Health Impact Assessment**

The proposed revisions to Part G and the Approved Document make an allowance for the use of water from non-wholesome sources. The use of these sources of water within buildings is currently limited to WCs, urinals and washing machines to protect health. In addition, the building designer (or the manufacturer of a proprietary unit) is required to carry out a satisfactory impact assessment to ensure that there would be no adverse impact on the health of the building occupants.

There might need to be provisions for exemptions in cases where individuals have chronic health problems or disabilities which will require modifications to their facilities to address a specific need.

The proposed provisions for water efficiency focus on reducing water consumption through the design of the fittings rather than user's habits and so will not have any impacts on health.

**Race Equality**

The proposed provisions do not require any changes to user's habits and so are not seen as having different impacts on any particular racial group.

**Disability Equality**

Please refer to comment under Health Impact Assessment. We welcome consultation comments on this and other specific impacts.

**Gender Equality**

It is envisaged that the proposal will have no gender specific impact.

**Human Rights**

It is envisaged that the proposal will have no impact on human rights.

**Rural Proofing**

We do not see that there is a particular difference in the way these proposals will work in rural situations. Whilst it is envisaged that the proposal will have no differential impact on rural communities, there may be costs and benefits that we have not identified and we would welcome thoughts on these.

## Summary and conclusions

This IA considers the costs and benefits of the revision of Part G of the Building Regulations (England and Wales) and the guidance in AD G excluding those connected with water efficiency.

Two options have been considered: (i) do nothing and (ii) update Part G to reflect current regulation requirements and standards, and include a whole building water efficiency requirement at a level of 125 litres per person per day with guidance including an assessment method described in a revised Approved Document G.

The costs and benefits of water efficiency measures are not included here. We anticipate one-off costs for familiarisation and training in Year one, falling to industry. Stakeholders have suggested that there will be no other costs as the proposal reflects current practice. We would be interested to hear from consultees on this and on possible benefits, including those on how better and clearer guidance will assist consistent interpretation and better compliance.

A summary of costs and benefits for the two options is given below.

<b>Option</b>	<b>Costs</b>	<b>Benefits</b>
Option 1	No direct costs but would forego benefits of option 2	None
Option 2	One-off cost = £1.5 million	No quantified benefits to households and industry have been identified, however we will assess this further in light of responses we receive during the consultation.

## Summary: Intervention & Options

<b>Department /Agency:</b> <b>Communities and Local Government</b>	<b>Title:</b> <b>Hot Water Safety – Impact Assessment of a revision to Approved Document G to the Building Regulations 2000 (England and Wales)</b>	
<b>Stage:</b> Consultation	<b>Version:</b> 1.0	<b>Date:</b> April 2008
<b>Related Publications:</b> The proposed new edition of Approved Document G: Sanitation, Hot Water Safety and Water Efficiency		

**Available to view or download at:**

[www.communities.gov.uk](http://www.communities.gov.uk)

**Contact for enquiries:** Mike Johnson/Guy Bampton    **Telephone:** 020 7944 5745/5725

**What is the problem under consideration? Why is government intervention necessary?**

There are health and safety risks arising from excessively hot water delivered at water outlets from sanitary appliances. This continues to cause a number of severe injuries and fatalities each year, despite health awareness campaigns and the ready availability of technologies that can significantly reduce these risks. The consultation seeks further information to assist with determining whether a case can be made for introducing a Requirement for the use of technologies which would tackle this issue, and under what circumstances such a Requirement should exist.

**What are the policy objectives and the intended effects?**

The policy objectives, should such a Requirement eventually be introduced, would be to reduce the number of severe injuries and fatalities caused by scalding as a result of hot water from sanitary appliances. The scale of the effect would be determined by the limitations placed on the Requirement.

**What policy options have been considered? Please justify any preferred option.**

There are concerns about the ongoing effectiveness of awareness campaigns for reducing the risks, and so we are seeking information to help us assess whether a complementary Requirement in Building Regulations could bring about a further cost effective reduction in the risks arising from hot water from sanitary fittings. We are not considering or analysing the role of other measures to address the risks.

In considering this we have looked at a number of options (described below) both in terms of the types of buildings which could be covered and the types of sanitary appliances. As a result of this analysis we are not currently proposing to include such a Requirement in the Building Regulations as the current costs and benefits do not currently support this. We will reconsider this position in the light of further information received from consultees.

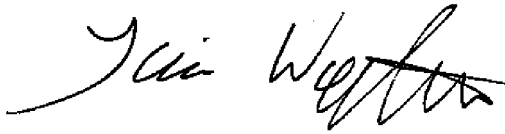
**When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?**

Not applicable at this stage since this Impact Assessment does not currently support the inclusion of measures in Building Regulation to limit the temperature of hot water delivered at water outlets.

**Ministerial Sign-off** For consultation stage Impact Assessments:

*I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.*

Signed by the responsible Minister:



**Date:**

## Summary: Analysis & Evidence

<b>Policy Option: 3A</b>	<b>Description: Introduce a Requirement on the control of hot water temperature to baths in new dwellings</b>
--------------------------	---

COSTS	<b>ANNUAL COSTS</b>	Description and scale of <b>key monetised costs</b> by 'main affected groups' Installation of in-line blending valves to all baths in new dwellings. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householders.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Cost</b> (excluding one-off)	
£8.8 million	<b>Total Cost (PV)</b>	<b>£73.4 million</b>
Other <b>key non-monetised costs</b> by 'main affected groups'. Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.		

BENEFITS	<b>ANNUAL BENEFITS</b>	Description and scale of <b>key monetised benefits</b> by 'main affected groups' We have examined the reduction in scalding incidents including fatalities caused by hot water to baths. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Benefit</b> (excluding one-off)	
£3.0 million	<b>Total Benefit (PV)</b>	<b>£23.5 million</b>
Other <b>key non-monetised benefits</b> by 'main affected groups' Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.		

**Key Assumptions/Sensitivities/Risks**  
 Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-50 million
--------------------------------	--------------------------------	--	---

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Summary: Analysis & Evidence

<b>Policy Option: 3B</b>	<b>Description: Introduce a Requirement on the control of hot water temperature to showers and taps in new dwellings</b>
--------------------------	--

<b>COSTS</b>	<b>ANNUAL COSTS</b>	Description and scale of <b>key monetised costs</b> by 'main affected groups'. Installation of in-line blending valves to all showers and wash basin taps in new dwellings. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householders.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Cost</b> (excluding one-off)	
	<b>£28.8 million</b>	<b>Total Cost (PV)    £239.6 million</b>
Other <b>key non-monetised costs</b> by 'main affected groups'. Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.		

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>	Description and scale of <b>key monetised benefits</b> by 'main affected groups'. We have examined the reduction in scalding incidents including fatalities caused by hot water to showers and wash basin taps. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Benefit</b> (excluding one-off)	
	<b>£83,000</b>	<b>Total Benefit (PV)    £653,000</b>
Other <b>key non-monetised benefits</b> by 'main affected groups' Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.		

**Key Assumptions/Sensitivities/Risks**  
 Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-239 million
--------------------------------	--------------------------------	--	--

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Summary: Analysis & Evidence

<b>Policy Option: 4A</b>	<b>Description: Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use</b>
--------------------------	---

<b>COSTS</b>	<b>ANNUAL COSTS</b>	Description and scale of <b>key monetised costs</b> by 'main affected groups'. Installation of in-line blending valves to all baths in new dwellings, extensions to, and changes of use of, dwellings. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householder.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Cost</b> (excluding one-off)	
	£9.6 million	<b>Total Cost (PV)    £79.8 million</b>
Other <b>key non-monetised costs</b> by 'main affected groups'. Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.		

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>	Description and scale of <b>key monetised benefits</b> by 'main affected groups'. We have examined the reduction in scalding incidents including fatalities caused by hot water to baths. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Benefit</b> (excluding one-off)	
	£3.2 million	<b>Total Benefit (PV)    £25.4 million</b>
Other <b>key non-monetised benefits</b> by 'main affected groups'. Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.		

### Key Assumptions/Sensitivities/Risks

Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-54.4 million
--------------------------------	--------------------------------	--	---

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Summary: Analysis & Evidence

<b>Policy Option: 4B</b>	<b>Description: Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and in dwellings created by a change of use</b>
--------------------------	---

<b>COSTS</b>	<b>ANNUAL COSTS</b>	Description and scale of <b>key monetised costs</b> by 'main affected groups'. Installation of in-line blending valves to all showers and wash basin taps in new dwellings, extensions to, and changes of use of, dwellings. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householders.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Cost</b> (excluding one-off)	
	£31 million	<b>Total Cost (PV)    £258 million</b>
Other <b>key non-monetised costs</b> by 'main affected groups'. Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.		

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>	Description and scale of <b>key monetised benefits</b> by 'main affected groups'. We have examined the reduction in scalding incidents including fatalities caused by hot water to baths. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition) <b>Yrs</b>	
	£0	
	<b>Average Annual Benefit</b> (excluding one-off)	
	£96,000	<b>Total Benefit (PV)    £758,000</b>
Other <b>key non-monetised benefits</b> by 'main affected groups'. Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.		

**Key Assumptions/Sensitivities/Risks**  
 Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-257 million
--------------------------------	--------------------------------	--	--

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Summary: Analysis & Evidence

<b>Policy Option: 5A</b>	<b>Description: Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use and replacement baths</b>
--------------------------	---

<b>COSTS</b>	<b>ANNUAL COSTS</b>		Description and scale of <b>key monetised costs</b> by 'main affected groups'. Installation of in-line blending valves to all baths in new dwellings, extensions to, and changes of use of, dwellings. Also, installation of in-line blending valves in replacement baths. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householders.
	<b>One-off</b> (transition)	<b>Yrs</b>	
	£0		
	<b>Average Annual Cost</b> (excluding one-off)		
	£10 million		
<b>Total Cost (PV)</b>		<b>£82.8 million</b>	
Other <b>key non-monetised costs</b> by 'main affected groups'. Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.			

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>		Description and scale of <b>key monetised benefits</b> by 'main affected groups'. We have examined the reduction in scalding incidents including fatalities caused by hot water to baths. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition)	<b>Yrs</b>	
	£0		
	<b>Average Annual Benefit</b> (excluding one-off)		
	£3.3 million		
<b>Total Benefit (PV)</b>		<b>£26.1 million</b>	
Other <b>key non-monetised benefits</b> by 'main affected groups'. Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.			

**Key Assumptions/Sensitivities/Risks**  
 Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-56.7 million
--------------------------------	--------------------------------	--	---

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Summary: Analysis & Evidence

<b>Policy Option: 5B</b>	<b>Description: Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and dwellings created by a change of use and replacement showers and taps</b>
--------------------------	---

<b>COSTS</b>	<b>ANNUAL COSTS</b>		Description and scale of <b>key monetised costs</b> by 'main affected groups'. Installation of in-line blending valves to all showers and wash basin taps in new dwellings, extensions to, and changes of use of, dwellings. Also, installation of in-line blending valves in replacement baths. This includes purchase price and installation by a plumber. These costs will primarily be borne by the householders.
	<b>One-off</b> (transition)	<b>Yrs</b>	
	<b>Average Annual Cost</b> (excluding one-off)		
	<b>£0</b>		
	<b>£32.0 million</b>	<b>Total Cost (PV)</b>	<b>£265.9 million</b>
Other <b>key non-monetised costs</b> by 'main affected groups' Maintenance is not covered by the Building Regulations. There is a possible cost to householders for maintenance of in-line blending valves to ensure they work as intended.			

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>		Description and scale of <b>key monetised benefits</b> by 'main affected groups'. We have examined the reduction in scalding incidents including fatalities caused by hot water to baths. The benefits will be shared between the NHS and the house occupants.
	<b>One-off</b> (transition)	<b>Yrs</b>	
	<b>Average Annual Benefit</b> (excluding one-off)		
	<b>£0</b>		
	<b>£100,000</b>	<b>Total Benefit (PV)</b>	<b>£787,000</b>
Other <b>key non-monetised benefits</b> by 'main affected groups' Reduction in trauma and long term emotional problems associated with injury and reduction in lost work days and earnings.			

**Key Assumptions/Sensitivities/Risks**  
 Proportion of injuries by appliance; total number of incidents proportional to population; package of care required for each specific injury; proportion of injuries requiring intensive care; household projections and proportion of each type of property to be built; number of bathrooms; cost of in-line blending valves.

<b>Price Base</b> Year 2009	<b>Time Period</b> Years 10	<b>Net Benefit Range</b> (NPV) £	<b>NET BENEFIT</b> (NPV Best estimate) £-265.2 million
--------------------------------	--------------------------------	--	--

What is the geographic coverage of the policy/option?		England and Wales		
On what date will the policy be implemented?		April 2009		
Which organisation(s) will enforce the policy?		Building Control Bodies		
What is the total annual cost of enforcement for these organisations?		£Nil		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£N/A		
What is the value of changes in greenhouse gas emissions?		£N/A		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A
<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase – Decrease)		
Increase of £	Decrease of £	<b>Net Impact £</b>		
Key:	<b>Annual costs and benefits: Constant Prices</b>		<b>(Net) Present Value</b>	

## Evidence Base (for summary sheets)

### WHAT MIGHT THE BUILDING REGULATIONS PROVIDE TO REDUCE THE HEALTH AND SAFETY RISKS ASSOCIATED WITH HOT WATER FROM SANITARY FITTINGS

#### Purpose and intended effect

The objective of these measures is to reduce the number of deaths and severe injuries caused by scalding by contact with hot water supplied from sanitary fittings in buildings.

This could be done through the introduction of an amendment similar to that introduced in Scotland, which requires the installation of an in-line blending valves to limit the temperature of water to 48°C.

This Impact Assessment looks at the balance between the costs of hot water injury and the benefits of preventing these, against the costs of placing a limit on the temperature of water discharged in a range of sanitary appliances.

Changes could only apply to installations within new homes, extensions to existing homes and change of use (converted homes) as defined by the options in this impact assessment.

Changes would not normally be applied to the replacement of sanitary appliances within existing properties e.g. when a tap is replaced. However, it is expected that changes in Building Regulations would have a knock-on effect whereby the practice of installing temperature limitation devices in some properties would extend to others through propagation of good practice.

The costs and benefits of extending such a Requirement to buildings other than homes have not been evaluated as we are not aware that the data exists which would allow such an analysis to be undertaken.

However, information provided by stakeholders during consultation on this and other measures will be welcomed and considered further.

#### Rationale for government intervention

Scalding – serious injury from contact with, or immersion in, very hot water is a risk that exists every day in many buildings, particularly in our homes. The severity of possible injury depends on several factors – the temperature of the water, the period of contact, the extent of contact (spray or immersion) and the age and health of the affected person, with both very young and elderly people being particularly at risk from the effects of very hot water.

Whilst recommendations for safe hot water temperatures are provided in guidance from the Health & Safety Executive and the NHS, Government guidelines on water temperature are contained only within advisory documents on compliance with the Water Supply (Water Fittings) Regulations 1999. These temperatures serve to control the presence of pathogens such as Legionella in hot water systems. The principle that stored water be kept at a temperature of above 60°C and distributed at above 50°C is well established within existing industry guidance. At present there are no guidelines or legislation on the temperature of hot water at the point of delivery across all types of buildings.

The introduction of guidance to the Building Regulations for England and Wales on the control of hot water temperature from sanitary fittings would act to address the hazard of scalding in a proactive manner. This would result in the significant reduction of such injuries in the buildings covered.

This action is supported by a number of NHS consultants who made representation during the public consultation on water efficiency measures in 2006/7. A circular was sent by the British Burn Association to a wide range of stakeholders. As a result, 22 responses were received with the following key message: “Every year in the UK around 20 people die and 570 suffer serious scald injuries due to hot bath water. The under fives and the elderly are most at risk. These injuries and deaths are preventable by the installation of thermostatic mixing valves to regulate the maximum hot water temperature to 48 degrees”.

Schedule 1: Part G3 of the Building Regulations 2000 requires that people be protected against injury from the discharge of steam or hot water. At present, Approved Document G gives guidance on unvented hot water storage systems and on discharges from overflow pipes. It is also proposed that the hazard of excessively hot water from sanitary fittings should also be addressed.

This would bring England and Wales into line with Scotland where measures to limit the temperature of delivered water to baths and bidets were introduced in 2006.

## Consultation

### **Within government**

The development of these proposals has been conducted by Communities and Local Government in conjunction with the members of the Building Regulations Advisory Committee (BRAC) who are appointed as independent statutory advisors to the Secretary of State. The Part G Technical Working Party (WP) steering the review of Part G includes members of BRAC and representatives from the manufacturing, plumbing and building development sectors. It also includes a number of seconded experts from Communities and Local Government, Defra and the Devolved Administrations.

## Public consultation

A consultation document which includes proposed amendments and questions, together with this supporting Impact Assessment, is being made available for public consultation. Consultees' responses will be compiled and reviewed, and will inform final proposals which will be supported by a final version of the IA.

## Risk Assessment – overview

Hospital Episode Statistics<sup>1</sup> show that there were 767 serious scalding injuries caused by contact with hot tap water that led to hospital admissions in England and Wales in 2006-07. In addition, 19 fatalities per year (average over 3 year period, 1993-1995), and many more minor injuries, are attributed to hot water from taps (Sambrook, 1999). All fatalities and 93% of severe injuries are associated with hot water from bath taps.

Table 1 shows an estimate of the current number of scalds injuries that can be attributed to each sanitary appliance. The total annual cost of scald injuries (including fatalities) currently amounts to £61.3 million.

(See Annex A for a detailed health impact assessment and analysis of the cost of scald injuries.)

**Table 1: Number of scald injuries per year split by age, sanitary appliance and severity.**

Age	Baths			Shower		Washbasin taps		
	Fatalities	Category B	Category A	Minor	Category A	Minor	Category A	Minor
<b>0-14</b>		207	180		12		17	
<b>15-59</b>		57	117		6		7	
<b>60-74</b>		50	17		2		3	
<b>75+</b>		65	21		3		4	
<b>Total</b>	19	379	334	2599	23	405	31	371

Note: Injuries defined as "severe" in the Sambrook report may be divided into 2 further categories: Category A (involving 1-4 in-patient days) and Category B (involving 5 or more days as an in-patient and/or transfer to a specialist hospital/burns unit).  
Source: "The Sambrook Report: Burns and scalds accidents in the home" - DTi, Government Consumer Safety Research, 1999 <http://www.humanics-es.com/burns.pdf>.

The annual risk of any type of scald injury from hot tap water is very small: the total risk (including fatal injuries) is 1 in 13,000 whilst the risk of a fatal injury is just 1 in 3 million. However, vulnerable groups will be at greater risk.

<sup>1</sup> Source: Hospital Episode Statistics (HES) is a data source containing details of all admissions to NHS hospitals in England. The data for admitted cases is organised in many ways, including by external cause of admission.

## **Vulnerable persons**

Young children are the group at greatest risk from scalding injuries. The sensitive skin of a child will burn more easily than that of an adult. Hot bath water is the number one cause of severe scalding injuries among young children.

Young children that fall into hot baths are likely to be severely scalded, often with 20%-50% body burns and occasionally 70% burns (Sambrook). Elderly people are also a high-risk group as they have thin skin and slower reaction times. For example, a less able person may take longer to get out of a bath that is too hot.

Many vulnerable persons are already protected in NHS and housing association premises (See Annex C). However, vulnerable persons including children living in private accommodation do not enjoy the same level of protection.

## **In-line blending valves (thermostatic mixing valves)**

Under Options 3 to 5 of this Impact Assessment, it is proposed that in-line blending valves are fitted to control the temperature of hot water from sanitary fittings.

Hot and cold water entering an in-line blending valve is mixed to a temperature pre-selected by the user or installer. This temperature limitation is achieved automatically by a thermally sensitive mechanism within the valve that proportions the amount of hot and cold water entering to produce the required blend<sup>2</sup>. The mechanism then automatically compensates for any variations in supply pressures or temperatures to maintain the pre-selected temperature. In the event of a cold water supply failure, the in-line blending mechanism will automatically shut down the flow to prevent discharge of dangerously hot water.

Fitting an in-line blending valve to a sanitary appliance reduces the risk of scalding from that appliance to zero. This is a key premise in calculating reduced risk by the addition of in-line blending valves to certain sanitary appliances.

The provision of temperature control, normally by thermostatic control at, or close to, outlet points creates a situation where a small portion of supply pipework never reaches these temperatures and a small additional risk of contamination may arise.

These concerns need to be borne in mind when reviewing the options proposed.

<sup>2</sup> Source: BRE IP 14/03 'Preventing hot water scalding in bathrooms: using TMVs'. 2003

## Options

The options considered are:

Option 1      Do Nothing

Option 2      A public awareness campaign to increase awareness of the risks of scalding from hot water and the particular risks to young children and the elderly.

Option 3-5    Introduce a Requirement and associated guidance to the Building Regulations on the control of hot water temperature from sanitary appliances.

- Option 3A Introduce a Requirement on the control of hot water temperature to baths in new dwellings
- Option 3B Introduce a Requirement on the control of hot water temperature to showers and taps in new dwellings
- Option 4A Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use
- Option 4B Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and in dwellings created by a change of use
- Option 5A Introduce a new Requirement on the control of hot water temperature to baths in new dwellings, baths in extensions to dwellings and baths in dwellings created by a change of use and replacement baths
- Option 5B Introduce a new Requirement on the control of hot water temperature to showers and taps in new dwellings, extensions to dwellings and dwellings created by a change of use and replacement showers and taps

### **Buildings other than dwellings**

Options 3-5 consider the protection of people in their homes. It should be noted that there would also be a risk to people using sanitary appliances in other buildings. However, the number of different building types, the lack of data on incidents in those buildings and the variability of time spent in those buildings makes it difficult to assess the costs and benefits. Unless additional information is forthcoming as a result of this consultation, analysis of the introduction of such a Requirement in other buildings would be extremely difficult and we do not therefore propose to carry out such an analysis, or to propose inclusion of other buildings in any future Requirement.

Note that a number of buildings are already covered by existing standards and regulations, e.g. NHS premises. Provision would not change as a result of the introduction of minimum standards in Part G.

## Sectors and groups affected

### Overview

The introduction of temperature control would impose burdens across all sectors of the building industry (developers, builders, etc.) and on home purchasers as well as on householders who are having relevant building work carried out.

In-line blending valves are already commonly used in the healthcare sector, therefore, this proposal is unlikely to impose an additional burden on manufacturers of such devices due to an increase in testing, product development or availability of manufacturing equipment.

Building Control Bodies (BCBs) would have to bear the cost of familiarisation with the proposed new guidance. The costs of this have been included in the Impact Assessment for the Update to Part G of the Building Regulations. Provided that these changes to the Building Regulations were implemented at the same time, there would be no further familiarisation costs due to the addition of a Requirement on the control of water temperature from sanitary appliances.

There could also be impacts on charities and the voluntary sector. However, many homes for children and the elderly are already covered by existing Standards and Regulations.

## Detailed costs and benefits

This section estimates the costs and benefits (a reduction in costs from scalding fatalities and injuries caused by hot tap water) for the range of options identified in this Impact Assessment. All costs (and benefits) are calculated using central estimates; a sensitivity analysis will be carried out before the final Impact Assessment is confirmed. A ten-year period of analysis has been chosen. In accordance with The Treasury's Green Book guidance, a discount rate of 3.5% has been applied to calculate present values. Costs and benefits are quoted below in present values.

(See Annex A for a detailed health impact assessment and analysis of the cost of scald injuries.)

### Benefits

#### Option 1: Do Nothing

Option 1 would produce no additional benefits because there would be no reduction in scalding.

## Option 2: Public Awareness Campaign

### Monetised benefits

It has not been possible to monetise the benefits arising from an awareness campaign.

### Non-monetised benefits

There may be short-term benefits to the NHS through the reduction of direct costs for healthcare.

In support of a review of Part G, BRE (2002) considered experience in other countries. The report draws on the experience of New Zealand and the educational programmes in place. Unfortunately these programmes have not been effective in reducing accidents. This was due, in part, to the variable quality of equipment used for hot water heating. Plumbers responsible for installation, modification and maintenance of hot water heating systems lacked a detailed knowledge of the risk of scalding posed by such systems. Awareness campaigns need to be repeated to maintain effectiveness.

## Options 3-5: Introduce a Requirement and associated guidance to the Building Regulations on the control of hot water temperature from sanitary appliances.

Benefits will accrue where scalds and fatalities that would be caused by hot water from sanitary appliances are prevented by the installation of in-line blending valves: the benefit is the cost of injury or death that has been prevented. For each option, the benefits of adding temperature control through the uses of in-line blending valves to (a) baths and (b) showers and wash basins are presented.

### Option 3: Introduce a requirement for all new dwellings on the control of hot water temperature to sanitary appliances (A: baths, B: showers and wash basins)

#### Monetised benefits

223,000 new homes will be built per year with an average household occupancy of 2.29 in 2009 (calculated from projected housing stock and population). Therefore 504,491 people could be protected from potential scald injuries in the first year after in-line blending valves are fitted to sanitary appliances in all new homes. Benefits will increase year on year as more households are protected.

Note: Since no figures could be found for projected housebuilding in Wales, it has been assumed that this will occur at the same rate as in England.

*Consultation Note: It is anticipated that this can be verified by information provided during the public consultation.*

The total benefits associated with this Option were estimated by applying the proportion of the total current population that will be protected against the total costs of fatalities and injuries from baths or showers and taps (see Annex A, Table 10).

Total benefits of Option 3A, installing in-line blending valves in baths in new homes: £23.5 million.

Total benefits of Option 3B, installing in-line blending valves in showers and washbasins in new homes: £653,000.

### **Non-monetised benefits**

There are a large number of additional benefits that cannot readily be costed. These include: a reduction in trauma and long-term emotional problems for the individual, lost work days to industry (minor injuries) and loss of income to individuals (serious injuries), loss of earnings to the parents or carers of young/elderly, costs associated with living (adapted accommodation, transport costs etc.).

### **Option 4: Introduce a requirement for all new dwellings, new extensions to, and changes of use of, dwellings on the control of hot water temperature to sanitary appliances** (A: baths, B: showers and wash basins)

### **Monetised benefits**

There is little data on the number of extensions constructed across England and Wales, and the proportion that include sanitary accommodation. Therefore it has been assumed that:

- 10% of extensions will include a new bathroom, 30% will include a new cloakroom and 30% will include a new en-suite;
- each extension will only include the addition of one of these rooms – so 30% of all extensions will not include the addition of any type of new sanitary accommodation; and
- a total of 30,000 extensions are built each year.

*Consultation Note: It is anticipated that if appropriate data does exist regarding number of extensions to dwellings, this would be provided during the public consultation.*

New sanitary accommodation built as part of an extension will not be used by all of the inhabitants of a household (or it will not be used all the time by all inhabitants) since there

is likely to be existing sanitary accommodation. Therefore, the inhabitants will not be totally protected from hot water scalds under this Requirement. Thus, benefits have been modelled as 50% of the benefits that would accrue if total protection were afforded. Benefits will increase year on year as more households are protected.

Total benefits of installing in-line blending valves in baths in extensions to dwellings: £158,000.

Total benefits from the installation of in-line blending valves to showers and wash basins in extensions are estimated to be £57,000.

There are 16,380 changes of use per year across England and Wales (based on 2007 figures for change of use, Planning Statistics, CLG). It is assumed that any buildings converted to dwellings will require hot water temperature control to all sanitary appliances. Therefore, in-line blending valves will be fitted to all sanitary appliances in sanitary accommodation in these dwellings and the risk of scalds from hot bath water will be reduced to zero. Benefits will increase year on year as more households are protected.

Total benefits of Option 4A, installing in-line blending valves on baths in new dwellings, extensions and where there is a change of use to a dwelling: £25.4 million.

Total benefits of Option 4B, installing in-line blending valves in showers and wash basins in new dwellings, extensions, and where there is a change of use to a dwelling: £758,000.

### **Non-monetised benefits**

These will be the same non-monetised benefits that arise under Option 3.

### **Option 5: Introduction of controls to sanitary appliances when an existing bathroom is refurbished and the baths, sinks etc. are replaced (A: baths, B: showers and wash basins)**

Note: It is not proposed to introduce this scenario under the Building Regulations as this is currently beyond the remit of the Regulations. However, evaluating the relative benefits and costs provides a benchmark for the other options being considered. In practice, it is expected that a ripple effect would be produced whereby the practice of installing temperature limitation in some properties would extend to others through propagation of good practice.

### **Monetised benefits**

In terms of installing temperature control devices (in-line blending valves), the effect on risk of scalding is similar to building a new bathroom.

It has been assumed that 45% of replacement work will be in bathrooms, 35% in cloakrooms and 20% in en-suites. All include the replacement of all of the sanitary appliances in the room that is being refitted and all new sanitary appliances will be fitted with in-line blending valves.

Assuming a total of 20,000 replacement projects, the assumptions above along with the assumptions in Table 3 can be used to estimate the total number of new baths, showers and taps that will be installed under this option.

*Consultation Note: It is anticipated that if appropriate data does exist regarding number of bathroom refits in dwellings, this would be provided during the public consultation.*

Note: household occupants will not be fully protected from scalds by refurbishments since there may be other sanitary appliances in the house that have not been fitted with in-line blending valves (e.g. another bathroom that is not refurbished); therefore, it has been assumed that 75% of the benefits from total risk reduction will accrue.

Total benefit of installing in-line blending valves when replacing baths: £712,000  
Total benefit of installing in-line blending valves when replacing showers and wash basins: £29,000

Total benefit of Option 5A, installing in-line blending valves in new dwellings, new extensions to, and changes of use of, dwellings, and where baths are replaced: £26.1 million  
Total benefit of Option 5B, installing in-line blending valves in new dwellings, new extensions to, and changes of use of, dwellings, and where showers and taps are replaced: £787,000.

### **Non-monetised benefits**

These will be the same non-monetised benefits that arise under Option 3.

### **Costs**

The current total costs of treatment due to hot water injuries from sanitary appliances are given in Annex A, Table 10. This would be ongoing if no further action were to be taken.

### **Option 1: Do nothing**

There are no direct costs associated with this option. However, selecting this option would mean that the benefits realised under Option 3 or 4 would be missed.

## Option 2: Public Awareness Campaign

### Monetised costs

It was not possible to quantify costs for this Option.

### Non-monetised costs

It is anticipated that the cost of this Option would be small.

## Options 3-5: Introduce a Requirement and associated guidance to the Building Regulations on the control of hot water temperature from sanitary appliances.

Costs will arise from the purchase and installation of in-line blending valves.

Number of in-line blending valves required per property:

**Table 2:** Assumptions: sanitary accommodation in properties of various sizes

Size of property	Average Room included
1 bedroom flat	1 bathroom
2 bedroom flat	1 bathroom and 1 en-suite
2 bedroom house	1 bathroom and 1 cloakroom
3 bedroom property	1 bathroom, 1 en-suite and 1 cloakroom
4 or more bedroom property	1 bathroom, 1 en-suite and 1 cloakroom

Source: Home Builders Federation/ National House-Building Council  
 Note: Communities and Local Government Housebuilding Statistics (Table 254) were used to split the total housing stock by size of dwelling (i.e. number of bedrooms) – see Table 12 in Annex A.

**Table 3:** Assumptions: sanitary appliances in bathrooms, cloakrooms and en-suites

Room	Hot water outlets	Number of in-line blending valves
Bathroom	1 wash basin 1 bath (with showerhead)	2
En-suite bathroom	1 wash basin 1 shower	2
Cloakroom	1 wash basin	1

Note: Although we recognise that different houses of a particular type (e.g. one bed flat) could have different appliances, after consultation with HBF and NHBC a standard list of the number of sanitary appliances in each type of sanitary accommodation has been developed.

Purchase and installation of in-line blending valves:

The design and range of thermostatic mixers available to the market is wide and varied as the manufacturers are very pro-active in meeting the demands of their customers. However the designs can be grouped into 5, as follows:

- Tee type valve, usually hidden from view;
- Single sequential mixer, mounted on the washbasin;
- Thermostatic shower valve exposed or concealed;
- Remote blending valve for large supplies;
- Bar type thermostatic valve, bath.

The cost of these products varies greatly with the exception of the tee type valve. This valve is the cheapest valve available and can be fitted to the supply pipework leading to each terminal fitting; therefore it has been assumed that this type of valve will be used. The cost to a builder/developer will vary as they usually buy in bulk and will therefore receive a discounted price dependent upon the number of valves purchased.

There will be a cost associated with the installation of in-line blending valves which is over and above the cost of installing bath taps for the tee type valve.

We estimate the cost of purchasing and installing each in-line blending valve to be £40 (central estimate).

**Option 3: Introduce a requirement for all new dwellings on the control of hot water temperature to sanitary appliances** (A: baths, B: showers and wash basins)

**Monetised costs**

223,000 new homes will be built each year. These can be split according to size of house (Annex A, Table 11). The number of in-line blending valves that will be installed in new houses is multiplied by the central value for in-line blending valve purchase and installation to give the total cost.

Total costs Option 3A, of installing in-line blending valves in baths in new dwellings: £73.4 million

Total costs of Option 3B, installing in-line blending valves in showers and washbasins in new dwellings: £239.6 million

## Non-monetised costs

Once the building work has been completed (obviously to the required standards to meet the relevant functional requirements) and signed off then there is no requirement under the Building Regulations for continued maintenance. If maintenance is required, costs will fall to the householder. In addition there is a risk that maintenance may not be carried out and products will need to be designed with a fail-safe mode.

### **Option 4: Introduce a requirement for all new dwellings, new extensions to, and changes of use of, dwellings on the control of hot water temperature to sanitary appliances** (A: baths, B: showers and wash basins)

## Monetised costs

The assumptions on number of extensions are presented against the benefits. The number of in-line blending valves that will be installed in extensions is multiplied by the central value for in-line blending valve purchase and installation to give the total cost.

Total costs of installing in-line blending valves in baths in extensions to dwellings:  
£1 million

Total costs of installing in-line blending valves in showers and washbasins in extensions to dwellings: £13 million

The assumptions on change of use are presented against the benefits.

Splitting the 16,380 changes of use by the size of dwelling (using Table 11 in Annex A) and using the assumptions already discussed about number of bathrooms cloakrooms and en-suites in different sized dwellings (Table 2), and about sanitary appliances in each of these (Table 3), allows an estimate of the number of in-line blending valves that will be installed to be made. Assuming a central figure of £40 per in-line blending valve it was then possible to estimate the cost of introducing a Requirement for all change of use to dwellings on the control of hot water temperature to sanitary appliances.

Total costs of installing in-line blending valves in baths in changes of use to dwellings:  
£5.4 million

Total costs of installing in-line blending valves in showers and washbasins in changes of use to dwellings: £5.4 million

Total cost of Option 4A, installing in-line blending valves in baths in new dwellings, new extensions and where there is a change of use to a dwelling: £79.8 million.

Total costs of Option 4B, installing in-line blending valves in showers and washbasins in new dwellings, new extensions and where there is a change of use to a dwelling: £258 million.

### Non-monetised costs

These will be the same non-monetised costs that arise under Option 3.

### Option 5: Introduction of controls to sanitary appliances when an existing bathroom is refurbished and the baths, sinks etc. are replaced (A: baths, B: showers and wash basins)

The assumptions on replacement of sanitary appliances are presented against the benefits.

### Monetised benefits

Using the assumptions above and the general assumptions about the number and type of sanitary appliances in bathrooms, cloakrooms and en-suites (Table 3), it was possible to estimate the number of baths, showers and taps that will have in-line blending valves fitted under this option. Assuming the central figure of £40 per in-line blending valve, it was possible to estimate the cost of introducing a Requirement for all refurbishments to sanitary accommodation in dwellings on the control of hot water temperature to all appliances used primarily for personal hygiene.

Total costs of installing in-line blending valves where baths are replaced: £3 million

Total costs of installing in-line blending valves where showers and washbasins are replaced: £8 million

Total costs of Option 5A, installing in-line blending valves in new dwellings, new extensions to, and changes of use of, dwellings, and where baths are replaced: £82.8 million

Total costs of Option 5B, installing in-line blending valves in new dwellings, new extensions to, and changes of use of, dwellings, and where showers and washbasins are replaced: £266 million

### **Non-monetised costs**

These will be the same non-monetised costs that arise under Option 3.

***CONSULTATION QUESTION 50: The benefits and costs of introducing temperature control to sanitary appliances have been presented in this Impact Assessment. Do you think these benefits and costs are reasonably represented?***

## Specific Impact Tests: Checklist

**Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.**

Type of testing undertaken	Results in Evidence Base?	Results annexed?
Competition Assessment	Yes (see below)	No
Small Firms Impact Test	Yes (see below)	No
Legal Aid	Yes (see below)	No
Sustainable Development	Yes (see below)	No
Carbon Assessment	Yes (see below)	No
Other Environment	Yes (see below)	No
Health Impact Assessment	Yes	Yes
Race Equality	Yes (see below)	No
Disability Equality	Yes (see below)	No
Gender Equality	Yes (see below)	No
Human Rights	Yes (see below)	No
Rural Proofing	Yes (see below)	No

### Competition Assessment

The measures considered were considered unlikely to raise any competition concerns. As in-line blending valves are already widely used in the NHS, Housing Associations and in Scotland there are a range of in-line blending valve suppliers currently in the market. The proposed new Requirement to Part G of the Building Regulations will not limit the number or range of suppliers since it does not specify any particular design of in-line blending valve that must be used. Furthermore, since it is not specified that the in-line blending valve should be incorporated into an appliance, the suppliers of certain sanitary appliances will not be disadvantaged.

### Small Firms Impact Test

The cost of buying and installing in-line blending valves in homes would be passed onto householders and occupiers and therefore, in this regard, the cost impact on businesses would be limited. However, it is recognised that firms spend a significant amount of time keeping up to date with revised and new regulations and that the cost of this is likely to be proportionately higher for small firms than large ones. We recognise that any changes to the hot water requirements in Part G could therefore affect small firms disproportionately even though the overall cost of familiarisation is not considered to be large.

Accordingly, initial soundings were taken on the impact of the proposed measures on small firms. These will be followed up during the consultation period by further work with small firms. Firms affected by these proposals could include: house builders, installers (plumbers and heating engineers) and manufacturers (who could receive a positive impact through increased sales).

There are a large number of installers, many sole traders. The Institute of Plumbing and Heating Engineers (IPHE) who represent many of the installers (sole traders and journeymen) was involved in the development of the proposed revisions through active membership of the BRAC Working Party.

Private sector developers vary from multi-nationals to very small firms. The Home Builders Federation and the National House Building Council both have small business forum. The HBF and the NHBC were also involved in the development of the proposed revisions through active membership of the BRAC Working Party G.

### **Legal Aid**

It is envisaged that the measures considered will have no impact on legal aid.

### **Sustainable Development**

The measures considered were not considered to have a significant impact on sustainable development, although we will consider this further.

### **Carbon Assessment**

The measures considered were not considered to have a significant carbon impact, although we will consider further the a possibilities of lower water and energy use.

### **Other Environment**

The environmental impacts such as additional use of materials and energy in production of equipment in the measures considered will not have a significant environmental impact, although we will consider further.

### **Health Impact Assessment**

A new Requirement in the Building Regulations to control the temperature of hot water from sanitary appliances would be a response driven by the health impacts of scalding from hot tap water. A full Health Impact Assessment has been carried out in Annex A.

### **Race Equality**

The provisions considered for hot water temperature control focus on reducing scald incidents through the design of the fittings rather than user's habits and we are not aware of any disproportionate impact on any particular racial group.

### **Disability Equality**

The do nothing option will not have a positive or negative impact although the other options considered could have positive impacts for vulnerable groups and could be of benefit to people with certain disabilities. We will be exploring these, including possible monetisation, further during the consultation.

### **Gender Equality**

The measures considered were not considered to have a gender specific difference in impact.

### **Human Rights**

The measures considered were not considered to have an impact on human rights.

### **Rural Proofing**

We do not consider there to be a difference in risk in rural communities such that the measures considered have a specific impact relative to – or a difference in impact on – rural communities.

## **Summary and Conclusions**

This Impact Assessment considers potential revision to Part G of the Building Regulations (England and Wales) concerning the control of the temperature of hot water being delivered from sanitary appliances.

Five options have been considered: (1) do nothing; (2) public awareness campaign; (3) introduce a new Requirement to the Building Regulations for all new dwellings on the control of hot water temperature to sanitary appliances; (4) introduce a new Requirement to the Building Regulations for all new dwellings, extensions to, and changes of use of, dwellings on the control of hot water temperature to sanitary appliances, and (5) introduce a new Requirement to the Building Regulations for all new dwellings, extensions to, and changes of use of, dwellings and replacement sanitary appliances in dwellings on the control of hot water temperature to sanitary appliances. For Options 3-5 we have evaluated the costs and benefits of introducing in-line blending valves to (a) baths and (b) showers and wash basin taps.

A summary of costs and benefits for the options is given below.

Option	Costs	Benefits
1	No direct costs, but would forego the benefits of other options	None
2	Small	Limited unless sustained
3A	Annual average cost: £8.8 million	Average annual benefit: £3 million
3B	Average annual cost: £28.8 million	Average annual benefit: £83,000
4A	Average annual cost: £9.6 million	Average annual benefit: £3.2 million
4B	Average annual cost: £31 million	Average annual benefit: £96,000
5A	Average annual cost: £10 million	Average annual benefit: £3.3 million
5B	Average annual cost: £32 million	Average annual benefit: £100,000

Most very severe and all fatal injuries from hot tap water are associated with baths. Therefore, the benefits of installing in-line blending valves in baths far outweigh the benefits of installing in-line blending valves in showers and wash basin taps. Of the options considered in this Impact Assessment, Option 3A, installing in-line blending valves in baths in new dwellings, offers the most cost-effective reduction in the risk of scald injuries. However, the overall costs are still significantly larger than the overall benefits. On the basis of currently available information we do not therefore propose to introduce a requirement to fit in-line blending valves to baths in new build properties.

***CONSULTATION QUESTION 51: Introducing in-line blending valves to new build properties, extensions and changes of use impose significant costs which greatly exceed the financial benefits of this measure. Whilst we would like to support the introduction of these to control the temperature on bath taps in order to start addressing the most severe and fatal injuries from hot tap water associated with baths, we cannot justify a proposal to do this. Are you able to provide us with additional information to inform our assessment of the costs and benefits of these?***

# ANNEX A

## **Control of hot water temperature from sanitary fittings: detailed health impact assessment and analysis of the cost of scald injuries**

### Introduction

The impact assessment looks at the balance between the costs of hot water injury and the benefits of preventing these, against the costs of placing a limit on the temperature of water discharged in a range of sanitary appliances.

This Annex A fully evaluates the benefits and costs of a range of options:

- Control of hot water delivery to baths, showers and washbasins
- Introduction of controls to each of the sanitary appliances above for new buildings, extensions to existing buildings and change of use (conversions)
- Introduction of controls to each of the sanitary appliances above when an existing bathroom is replaced.

Note: the proposed changes are not intended to be applied under Building Regulations to this latter option, the replacement of sanitary appliances within existing properties. However, evaluating the relative benefits and costs provides a benchmark for the other options being considered. In practice, it is expected that a ripple effect would be produced whereby the practice of installing temperature limitation in some properties would extend to others through propagation of good practice.

### Risk Assessment

#### **Number of incidents in England and Wales**

##### **1. Number of fatalities**

As there are no collated NHS statistics for the number of fatalities as a result of scalding, the figure of 21 fatalities quoted in the Sambrook Report is used to define the number of fatalities per year due to hot tap water scalding.

This figure is an estimate of the number of fatalities per year, taken from the HADD database<sup>3</sup> over the 3-year period 1993-1995. As the HADD database is representative of the UK, this figure needs to be scaled down (using population figures in the respective Devolved Administrations, Table 2) to represent the cases in England and Wales alone.

## 2. Number of serious incidents

The 2006-07 Hospital Episode Statistics (HES) data is the most reliable source of total admitted cases<sup>4</sup> by NHS hospitals. Information on admitted patient care delivered by NHS hospitals in England is provided against Code X11, Contact with Hot Tap Water. The data are categorised by age of patient. The total number of bed days is also provided.

Total finished consultant episodes<sup>5</sup> (England) = 725.

Total bed days (England) = 4,394

Note 1: Bed days is the sum of all the days that patients in the group occupied hospital beds during the HES year (1 April 2006 to 31 March 2007).

Note 2: There is no further breakdown of 'Contact with Hot Tap Water'. For the purposes of this assessment, we have assumed all incidents are associated with wash basins, showers and baths. There may be cases associated with kitchen sink taps.

Note 3: For the purposes of this assessment, we have assumed that 'admitted cases' are serious cases (Categories A and B<sup>6</sup>) only. There is no indication of whether the HES figures for admitted cases include fatalities. Therefore, it has been assumed that fatalities are excluded from the number of admitted cases (these will be dealt with separately).

Note: It is anticipated that this can be verified by information provided during the public consultation.

This data has been adjusted to provide a total for England and Wales (Table 1) based on population (Table 2). The HES data included a count of episodes relating to patients of distinct age groups; the split of the total number of admitted cases by these age groups is also shown in Table 1. This will be used later in our analysis to model the different levels of risk faced by the different age groups.

<sup>3</sup> Source: Home Accidents Deaths Database

<sup>4</sup> Source: HES Online, <http://www.hesonline.nhs.uk>. Admission episodes: Episodes that were the first in the spell of admitted patient treatment (episodes with an episode order of 1). Note that this includes patients who were admitted in previous years (ie prior to 1 April).

<sup>5</sup> Finished Consultant episodes: A count of the number of HES records, submitted on behalf of English NHS hospital providers, that relate to episodes of admitted patient care that ended during the financial year (1 April to 31 March). (HES Online- Explanatory Notes).

<sup>6</sup> Injuries defined as "severe" in the Sambrook report may be divided into 2 further categories: Category A (involving 1-4 in-patient days) and Category B (involving 5 or more days as an in-patient and/or transfer to a specialist hospital/burns unit). Source: "The Sambrook Report: Burns and scalds accidents in the home" - DTI, Government Consumer Safety Research, 1999 <http://www.humanics-es.com/burns.pdf>.

**Table 1:** Finished consultant episodes (Source: HES 2006-7)

Age group	England (HES 2006-7)	England and Wales (adjusted)
0–14	393	416
15–59	177	187
60–74	67	71
75+	88	93
Total finished consultant episodes	725	767
Total bed days	4394	4651

**Table 2:** Population by country (Source: National Statistics Online)

	Population
England	50,762,900
Wales	2,965,900
Scotland	5,116,900
Northern Ireland	1,741,600
UK Total	60,587,300
England and Wales Total	53,728,800
Percentage increase England: England & Wales	5.84%

### 3. Number of minor incidents

The Sambrook Report stated a total number of minor injuries per year. It has been assumed that minor injuries continue to occur at the same level as 1999 when the report was prepared. There is no reason to consider otherwise.

The estimated number of minor injuries for England and Wales in 2008, based on current population, is therefore 3,375.

There is no breakdown of minor injuries by hot water from individual sanitary appliances or by age.

### Number of incidents by individual sanitary appliances

#### 1. Attribution of cases to individual sanitary appliances

The former DTi commissioned a detailed study into the attribution of incidents of scalding by hot tap water, published as "The Sambrook Report: Burns and scalds accidents in the home" - DTi, Government Consumer Safety Research, 1999 (<http://www.humanics-es.com/burns.pdf>).

The number of minor and severe scald incidents that can be directly attributed to (hot water from) baths, showers and taps is taken from the Sambrook report and reproduced in Table 3 below. All values are annual estimates.

Note: This table was constructed using HASS and LASS datasets<sup>7</sup> over the 5-year period 1992-1996 and the HADD database<sup>8</sup> (for fatal injuries) over the 3-year period 1993-1995. HASS and LASS databases are taken from a representative sample of hospital attendances around the UK.

In addition, the Sambrook report provided data on the number of minor injuries due to hot tap water: this is not now recorded in the HES.

**Table 3:** Number of injuries caused by hot tap water from sanitary appliances per year in the UK

	Total injuries	Minor injuries	Severe injuries	Fatal injuries
Shower	340 (10%)	324 (12%)	16 (3%)	0
Taps	331 (10%)	306 (11%)	25 (4%)	0
Baths	2677 (80%)	2103 (77%)	574 (93%)	21 (100%)
Total	3348	2733	615	21

This is the most recent detailed and published study attributing scalds to sanitary appliances. Therefore we have assumed the ratio of scalds attributed to each sanitary appliance and the ratio of minor to severe injuries is still current.

*Note: It is anticipated that this can be verified by information provided during the public consultation.*

## 2. Severity of scalds by individual sanitary appliances

The further division of data into the severity of scalds and the age of the injured person allows more accurate costing of the care offered to patients in this Impact Assessment.

Injuries defined as “severe” in the Sambrook report may be divided into 2 further categories: Category A (involving 1-4 in-patient days) and Category B (involving 5 or more days as an in-patient and/or transfer to a specialist hospital/burns unit).

The Sambrook report only presents the division of Categories A and B for bath injuries; Table 4 reproduces this information. This has been used to estimate a split in the current number of severe injuries (HES) to give a split by age band.

<sup>7</sup> Home Accident Surveillance System and Leisure Accident Surveillance System ([www.hassandlass.org.uk](http://www.hassandlass.org.uk))

<sup>8</sup> Home Accidents Deaths Database

**Table 4:** Division of 'severe' cases into Category A and Category B (for baths only) – Sambrook

Age group	Percentage of severe injuries in Category B	Percentage of severe injuries in Category A = (100%-Cat. B%)
0-4	67%	33%
5-10	33%	67%
11-17	33%*	67%
65+	75%	25%

\* Sambrook report: 'There are insufficient cases to differentiate between Category A and B injuries.'. For this impact assessment, we have assumed same % as for 5-10 year olds.

The age bands used in the Sambrook Report do not match those used in HES data, so the HES age bands have been used. This re-allocated information is presented in Table 5.

**Table 5:** Division of 'severe' cases into Category A and Category B (for baths only) – HES age bands

Age group	Percentage of severe injuries in Category B	Percentage of severe injuries in Category A = (100%-Cat. B%)
0-14	53.5%	46.5%
15-59	33%	67%
60-74	75%	25%
75+	75%	25%

There are no similar data available for showers and wash basins (to split severe cases down any further into category A and category B), therefore we have assumed that all severe injuries due to hot water from showers and wash basin taps are Category A.

Using the information in Tables 3 and 5, together with the assumption above on showers and wash basins, we have summarised the number of injuries in England in Wales per year by sanitary appliance, by age group and by severity of injury in Table 6.

**Table 6:** Summary of injuries by sanitary appliance, by age group and by severity of injury

Age band	No. severe cases (E&W)	Baths			Showers Category A	Washbasin taps Category A
		Total Baths	Category B (5 days +)	Category A (1-4 days)		
0-14	416	387	207	180	12	17
15-59	187	174	57	117	6	7
60-74	71	66	50	16	2	3
75+	93	86	65	21	3	4
Total	767	713	379	334	23	31
Source of data	HES 2006-7 pro-rata for England and Wales	Percentage by appliance from Sambrook	Number of severe cases in B Sambrook	Balance of total severe cases – calculation	Percentage by appliance from Sambrook. Category A assumed.	Percentage by appliance from Sambrook. Category A assumed.

Consultation Note: It is anticipated that this can be verified by information provided during the public consultation.

## The Cost of Care

### 1. Cost of hospital beds

The average cost of a 'Normal' NHS hospital bed day is £223.

*Source: This is inpatient rehabilitation services (cost per bed): weighted average of all patient rehabilitation stays excluding patients with brain injuries- from Unit Costs of Health and Social Care, 2007.*

The cost of a hospital bed day in a Burns Intensive Care Unit depends upon the level of care required in each case. Table 7 gives, for all burns (not only hot water scalds), the national average unit cost of bed day by level of care. The weighted average of these costs, £1769, has been used to establish a value for an NHS hospital bed day in intensive care for use in this assessment.

*Source: National Schedule of Reference Costs 2005-06 for NHS Trusts, Critical Care Services Data (Worksheet TCCS); available online from Department of Health: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_062884](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_062884)*

Level of care	National Average Unit Cost of bed day	Number of occupied bed days	Cost (£) (Unit cost x Bed days)	Weighted average
1	£971	8,336	£8,094,256	
2	£4,199	718	£3,104,882	
3	£3,303	3,198	£10,562,994	
<b>TOTAL</b>		12,252	£21,672,132	£1,769

It has been assumed that all cases will require 'normal' bed days, but that a proportion of cases will also required additional nursing in intensive care. It has been assumed that these are Category B cases only. There is no published evidence of the proportion of severe cases requiring intensive care. Therefore it has been assumed that 25% of Category B cases will require additional care.

The additional cost of an intensive care unit bed day (over a normal bed day) is assumed to be £1769 – £223 = £1546.

*Note: It is anticipated that this can be verified by information provided during the public consultation.*

## 2. Cost of hospital beds attributed to sanitary appliances

There is no breakdown of number of bed days for scalds from individual sanitary appliances. Therefore the total number of bed days has been divided in the same proportion as number of cases attributed to each sanitary appliance (see Table 3). This is presented in Table 8.

	% cases by sanitary appliance	Total number of bed days	Cost of normal bed days (£) @ £223/day
<b>Baths</b>	93	4325	£964,475
<b>Showers</b>	3	140	£31,220
<b>Taps</b>	4	186	£41,487
<b>TOTAL</b>		4651	£1,037,173
Source of data	Table 3	Total bed days divided by % of cases – calculation	Bed days x cost of 'normal' bed day – calculation

### 3. Treatment costs for hot water scalds

To estimate the cost of treatment for scald patients, data from the NHS costing manual were used. The NHS costing manual was introduced in November 1999 to bring greater consistency to the production of cost information. Cost codes J12 to J28 are used for the treatment of burns and have been used in these calculations.

To determine the treatments required for scalding incidents is extremely difficult, as each case is individual and will require varying treatments dependent upon the location, depth and area of the injury. Therefore to determine generic costs we have made some assumptions upon the treatment undertaken to give a standard “package” of care for each age band/severity group.

Care packages have been estimated for patients by age and severity of injury, as follows:

- Very Serious (Category B): children under age 0 – 14;
- Very Serious (Category B): aged 15 to 59;
- Very Serious (Category B): aged 60 to 74; and aged 75+
- Serious (Category A): children under age 0 – 14;
- Serious (Category A): aged 15 to 59;
- Serious (Category A): aged 60 to 74; and aged 75+
- Minor injuries: all ages

Detailed descriptions of the “package of care” for each of these groups can be found in Annex C.

Price per unit for treatment cost has been established from a number of sources:

- Ambulance and A & E visit for severe injuries: *Unit Costs of Health and Social Care, 2007, p.99: A&E Services: High cost investigation (referred/discharged) – National Average value.*
- A & E visit (minor injury): *Schedule of Reference Costs – NHS Trusts 2005-06. Lower Cost Investigation (Referred/Discharged) Code (page TA&E, code V06).*
- Extra cost of ITU bed day: Table 7 above.
- Procedures for burns treatment: *National Schedule of Reference Costs – NHS Trusts 2005-06 (codes J12-J28).*
- The cost per death is estimated to be £1,558,612 (2005 prices from Highways Economics Note No. 1, 2005 Valuation of the Benefits of Prevention of Road Accidents and Casualties uprated to 2009-2010 prices).

Taking account of the cost of hospital beds (Table 7), the cost of treatment for each injury (Annex C) and the number of injuries each year split by age group (Table 6), we can estimate the total cost of hot tap water scalding.

For 2009, the total cost of scald injuries and fatalities from hot tap water was estimated as £61,277,677 (Table 9).

The total cost of scalds caused by contact with hot tap water can be broken down to costs associated with scalds from each sanitary appliance. As stated above, it has been assumed that all fatalities and very serious (Category B) scalds are caused by contact with hot bath water.

As the most recent detailed and published study attributing scalds to sanitary appliances, the ratio of scalds per sanitary appliance presented in the Sambrook Report (Table 3) have been used to calculate the proportion of severe (Category A injuries) and minor injuries that can be attributed to each sanitary appliance.

**Table 9:** Summary of costs by age and severity of injury

<b>Age/Severity</b>	<b>Cost per person (£)</b>	<b>No. people affected per year</b>	<b>No. people affected per year (Category B ratio assumed 1:3 ITU: non-ITU)</b>	<b>Total cost by age/severity (£)</b>
<b>All ages Fatal</b>	1,558,612	19	19	29,613,628
<b>0–14 very serious with intensive care</b>	80,516		52	4,186,832
<b>0–14 very serious without intensive care</b>	72,246	207	155	11,198,130
<b>15–59 very serious with intensive care</b>	26,374		14	369,236
<b>15–59 very serious without intensive care</b>	17,349	57	43	746,007

**Table 9:** Summary of costs by age and severity of injury (*continued*)

Age/Severity	Cost per person (£)	No. people affected per year	No. people affected per year (Category B ratio assumed 1:3 ITU: non-ITU)	Total cost by age/severity (£)
60–74 very serious with intensive care	27,589		13	358,657
60–74 very serious without intensive care	18,564	50	37	686,868
75+ very serious with intensive care	27,589		17	469,013
75+ very serious without intensive care	18,564	65	48	891,072
0–14 serious	41,134	209	209	8,597,006
15–59 serious	13,872	130	130	1,803,360
60–74 serious	14,555	21	21	305,655
75+ serious	14,555	28	28	407,540
Minor injuries	180	3375	3375	607,500
Normal bed days	223	4651		1,037,173
<b>TOTAL</b>				<b>61,277,677</b>

Note: the extra cost of intensive care bed days (over normal bed days) is included in cost of care as part of the package of care for (25% of) very serious scalds.

**Table 10:** Summary of costs by sanitary appliance

	Total cost by sanitary appliance (£)				Cost of normal bed days	TOTAL (£)
	Minor	Serious (Category A)	Very serious (Category B)	Fatal		
<b>Baths</b>	564,975	9,574,186	18,905,815	29,613,628	964,475	59,623,079
<b>Showers</b>	18,225	659,732	0	0	31,220	709,177
<b>Taps</b>	24,300	879,643	0	0	41,478	945,421
<b>TOTAL (£)</b>	<b>607,500</b>	<b>11,113,561</b>	<b>18,905,815</b>	<b>29,613,628</b>	<b>1,037,713</b>	<b>61,277,677</b>

**Table 11:** Housing stock split by size (completed house building 2006-07, Source: CLG)

Type of dwelling	Number of bedrooms	% of total private enterprise housing	Number of properties built per year
<b>House</b>	1	0%	0
	2	6%	13,380
	3	27%	60,210
	4 or more	22%	49,060
<b>Flat</b>	1	9%	20,070
	2	34%	75,820
	3	1%	2,230
	4 or more	0%	0
<b>Houses and flats</b>	1	9%	20,070
	2	40%	89,200
	3	28%	62,440
	4 or more	22%	49,060

# ANNEX B

## Treatment Costs

**Table 1:** Very Serious, Children aged 0–14

Activity	Cost code	Price per unit (£)		Number of units	Cost (£)
Ambulance		257	per admission	1	£257
A&E		111	per admission	1	£111
“Major burn procedure >29% burns”	J15	6,198	per procedure	1	£6,198
“Soft tissue procedure”	J12	2,678	per procedure	2	£5,356
“Other burn with significant graft procedure >49”	J20	3,581	per procedure	15	£53,715
Plastic surgery	160/160F	85		15	£1,275
Pain management	191/191F	88		10	£880
Community nursing specialist	N29	66		4	£264
Community nursing district	N3	55		10	£550
Health visiting	N4/CN403FG	50		20	£1,000
Physiotherapy	N5/N5C1	64		10	£640
Play specialist		200	approx	10	£2,000
<b>TOTAL PER PATIENT (without ICU bed days)</b>					<b>£72,238</b>
“Intensive care nursing”	N26/CN206CF	108.329	per day	5	£540
Extra cost of ITU bed day		1,546	per bed day	5	£7,730
<b>TOTAL PER PATIENT (with ICU bed days)</b>					<b>£80,510</b>

<b>Table 2: Very Serious 15–59</b>					
<b>Activity</b>	<b>Cost Code</b>	<b>Price per unit</b>		<b>Number of Units</b>	<b>Cost (£)</b>
Ambulance		£257	per admission	1	£257
A&E		£111	per admission	1	£111
“Major burn procedure >29% burns”	J15	£6,198	per procedure	1	£6,198
“Soft tissue procedure”	J12	£2,678	per procedure	1	£2,678
“Other burn with significant graft procedure >49”	J20	£3,581	per procedure	2	£7,162
Plastic surgery	160	£73		2	£146
Pain management	191	£95		5	£475
Community nursing specialist	N29	£66		2	£132
Community nursing district	N3	£55		4	£220
Health visiting	N4/CN403FG	£50		6	£300
Physiotherapy	N5/N5A1	£29		5	£145
<b>TOTAL PER PATIENT (Without ICU bed days)</b>					<b>£17,824</b>
Extra cost of ITU bed day	See Annex B, Table 7	£1546	Per bed day	5	£1,295
“Intensive care nursing”	N26/CN206AF	£259	Per day	5	£7,730
<b>TOTAL PER PATIENT (with ICU bed days)</b>					<b>£26,849</b>

**Table 3:** Very serious (Category B): aged 60 – 74 and aged 75+

Activity	Cost Code	Price per unit		Number of Units	Cost (£)
Ambulance		£257	per admission	1	257
A&E		£111	per admission	1	111
“Major burn procedure >29% burns”	J15	£6,198	per procedure	1	6,198
“Soft tissue procedure”	J12	£2,678	per procedure	1	2,678
“Other burn with significant graft procedure >49”	J20	£3,581	per procedure	2	7,162
Plastic surgery	160	£73		2	146
Pain management	191	£95		5	475
Community nursing specialist	N29	£66		2	132
Community nursing district	N3	£55		12	660
Health visiting	N4/CN403FG	£50		12	600
Physiotherapy	N5/N5A1	£29			145
<b>TOTAL PER PATIENT (without ICU bed days)</b>					<b>£18,564</b>
“Intensive care nursing”	N26/CN206AF	£259 per day		5	
Extra cost of ITU bed day		£1,546 per bed day		5	
<b>TOTAL PER PATIENT (with ICU bed days)</b>					<b>£27,589</b>

<b>Table 4: Serious (Category A): aged 0 – 14</b>					
<b>Activity</b>	<b>Cost Code</b>	<b>Price per unit</b>		<b>Number of Units</b>	<b>Cost (£)</b>
Ambulance		£257	per admission	1	£257
A&E		£111	per admission	1	£111
“Major burn procedure >29% burns”	J15	£6,198	per procedure	1	£6,198
“Soft tissue procedure”	J12	£2,678	per procedure	1	£2,678
“Other burn with significant graft procedure >49”	J20	£3,581	per procedure	8	£28,648
Plastic surgery	160/ 160F	85		3	£255
Pain management	191/ 191F	£88		5	£440
Community nursing specialist	N29	£66		2	£132
Community nursing district	N3	£55		5	£275
Health visiting	N4/CN403FO	£50		10	£500
Physiotherapy	N5/N5C1	£64		10	£640
Play specialist		£200	approx	5	£1,000
<b>TOTAL PER PATIENT</b>					<b>£41,134</b>

**Table 5:** Serious (Category A): aged 15–59

<b>Activity</b>	<b>Cost Code</b>	<b>Price per unit</b>		<b>Number of Units</b>	<b>Cost (£)</b>
Ambulance		£257	per admission	1	£257
A&E		£111	per admission	1	£111
“Major burn procedure >29% burns”	J15	£6,198	per procedure	1	£6,198
“Soft tissue procedure”	J12	£2,678	per procedure	1	£2,678
“Other burn with significant graft procedure >49”	J20	£3,581	per procedure	1	£3,581
Plastic surgery	160/ 160F	73		1	£73
Pain management	191/ 191F	£88		5	£440
Community nursing specialist	N29	£66		2	£132
Community nursing district	N3	£55		3	£165
Health visiting	N4/ CN403FO	£50		3	£150
Physiotherapy	N5/ N5C1	£29		3	£87
<b>TOTAL PER PATIENT</b>					<b>£13,872</b>

<b>Table 6: Serious (Category A): aged 60 – 74 and aged 75+</b>					
<b>Activity</b>	<b>Cost Code</b>	<b>Price per unit</b>		<b>Number of Units</b>	<b>Cost (£)</b>
Ambulance		£257	per admission	1	£257
A&E		£111	per admission	1	£111
“Major burn procedure >29% burns”	J15	£6,198	per procedure	1	£6,198
“Soft tissue procedure”	J12	£2,678	per procedure	1	£2,678
“Other burn with significant graft procedure >49”	J20	£3,581	per procedure	1	£3,581
Plastic surgery	160/ 160F	73		1	£73
Pain management	191/ 191F	£88		5	£440
Community nursing specialist	N29	£66		2	£132
Community nursing district	N3	£55		8	£440
Health visiting	N4/CN403FO	£50		10	£500
Physiotherapy	N5/ N5C1	£29		5	£145
<b>TOTAL PER PATIENT</b>					<b>£14,555</b>

<b>Table 7: Minor injuries- all age groups</b>					
<b>Activity</b>	<b>Cost Code</b>	<b>Price per unit (£)</b>		<b>Number of Units</b>	<b>Cost (£)</b>
A&E visit		80	Per admission	1	80
Outpatient visit		50	Per visit	2	100
<b>TOTAL PER PATIENT</b>					<b>180</b>

# ANNEX C

Table 1: Application of TMVs						
Location		Is a TMV required by legislative or authoritative guidance?	Is a TMV recommended by legislative of authoritative guidance?	Is a TMV suggested best practice?	Reference documents	What type of valve?
Private dwelling	Bath			Yes		TMV 2
	Basin					
	Shower					
Housing Association dwelling	Bath		Yes		Housing Corp Standard	TMV2
	Basin					
	Shower					
Housing Association dwelling for the elderly	Bath	Yes			Housing Corp Standard	TMV2
	Basin					
	Shower					
Hotel	Bath			Yes	Guidance to the Water Regulations (G18.5)	TMV2
	Basin					
	Shower					
NHS Nursing Home	Bath		Yes		NHS Health Guidance Note, Care Standards Act, Care Homes Regulations and DO8	TMV3
	Basin					
	Shower					

Table 1: Application of TMVs						
Location		Is a TMV required by legislative or authoritative guidance?	Is a TMV recommended by legislative or authoritative guidance?	Is a TMV suggested best practice?	Reference documents	What type of valve?
Private Nursing Home	Bath		Yes		Guidance to the Water Regulations (G18.6), Care Standards Act, Care Homes Regulations and HSE Care Homes Guidance	TMV3
	Basin					
	Shower					
Young persons care home	Bath	Yes			Regulations, Care Standards Act, Care Homes Regulations and HSE Care Homes Guidanc	TMV3
	Basin					
	Shower					

Table 1: Application of TMVs						
Location		Is a TMV required by legislative or authoritative guidance?	Is a TMV recommended by legislative or authoritative guidance?	Is a TMV suggested best practice?	Reference documents	What type of valve?
Schools, including nursery	Bath	Yes, but 43°C max			The School Premises Regulations/ National minimum care Standards Section 25.8	TMV2
	Basin		Yes		Building Bulletin 87 2nd Edition	TMV2
	Shower	Yes			The School Premises Regulations/ National minimum care Standards Section 25.8	TMV2
Schools for severely disabled, including nursery	Bath	Yes, but 43°C max			The School Premises Regulations and, if residential, Care Standards Act	TMV3
	Basin		Yes		Building Bulletin 87 2nd Edition	TMV3
	Shower	Yes			The School Premises Regulations	TMV3

Table 1: Application of TMVs						
Location		Is a TMV required by legislative or authoritative guidance?	Is a TMV recommended by legislative or authoritative guidance?	Is a TMV suggested best practice?	Reference documents	What type of valve?
NHS hospital	Bath	Yes			NHS Health Guidance Note and DO8	TMV3
	Basin					
	Shower					
Private hospital	Bath		Yes		NHS Health Guidance Note and DO8	TMV3
	Basin					
	Shower					



**ISBN: 978-1-8511-0000-2**

ISBN 978-1-85110-000-2



9 781851 100002