

## **Excerpt from Public Petitions Committee Official Report 24 November 2004**

***Scottish Parliament, Public Petitions Committee, Wednesday 24 November 2004***

[THE CONVENER opened the meeting at 10:01]

### **New Petitions: Building Regulations (Thermostatic Mixing Valves) (PE786)**

**The Convener (Michael McMahon):** Good morning, colleagues, and welcome to the 18th meeting in 2004 of the Public Petitions Committee. Apologies have been received from Sandra White and Rosie Kane. I hope that the other members who are not yet with us but who have not sent apologies will turn up shortly. We have a busy agenda and, rather than delay further the start of the meeting, I propose that we start.

Item 1 is our consideration of new petitions, the first of which is PE786. The petitioner, Alan Masterton, has submitted the petition on behalf of the Scottish Burned Children's Club. He calls on the Scottish Parliament to urge the Scottish Executive to include in Scottish building regulations a mandatory requirement for thermostatic mixing valves to be installed in the hot-water systems of all new-build and renovated properties.

Alan Masterton will give a brief statement in support of the petition. He is accompanied by Darren Ferguson and Ken Stewart. I welcome all three witnesses. As is our normal practice, you have a few minutes to make your introductory remarks, after which we will move to questioning and then to the committee debate on the petition.

**Alan Masterton:** On behalf of the Scottish Burned Children's Club, I thank the committee for hearing our petition today. On my right is Mr Kenneth Stewart, a consultant paediatric plastic surgeon from the Royal hospital for sick children in Edinburgh. To my left is Mr Darren Ferguson. At only six months old, Darren sustained a bath water scald injury. In a few minutes' time, he will tell the committee a little of his journey.

Our motivation in submitting PE786 was borne out of frustration at the apparent lack of appetite among committee members' colleagues in the political world for a legislative end to the scourge of preventable scald injuries to children and the elderly, who are the weakest members of our society. For more than a year, we have kept a watchful eye on the progress of the thermostatic mixing valve debate. The issue has been kicked from one committee to another; the only decision has been which committee to refer the matter to next, further deferring the matter. Our fear is that the issue will be kicked into the long grass and forgotten about, which is something that could never be tolerated.

We hope that the Public Petitions Committee will agree that that intolerable situation cannot be allowed to continue. While committees defer and prevaricate, our children turn up at accident and emergency departments at the rate of 2,500 per year, of whom 500 are admitted to hospital. Of that number, 65 per cent stay in hospital for more than five days and 75 per cent are aged 5 or under. All their injuries are bath scald injuries.

I ask committee members to think of their children and grandchildren, and then of the 10 children just like them who turn up at hospital every day with a hot water scald injury. How can we, as responsible adults and parents, allow that horror to continue?

We could produce all sorts of figures from the big, impersonal picture that highlight the tragedy of scald injuries, but the figures do not tell the personal story of the human cost of scald

injuries: the cost in scald victims' loss of self-confidence and the continued and repeated pain cycle that such injuries create. Even with the best care and with the skill of people such as the gentleman on my right, the best skin graft will always be a poor substitute for the skin with which people were born.

Grafted skin does not grow and flex like your skin and my skin. It does not allow our bodies' thermostatic systems and nerve functions to operate in the graft area as they otherwise do. For every graft carried out, there is a graft donor site that is painful and uncomfortable. Let us build a safety fence at the top of the cliff and retire the ambulance down in the valley. Let us prevent this horror from happening in our homes and stealing the childhoods of our precious children. Let us put an end to lifetimes of constant medical treatment and to the psychological scarring that results from this most pernicious of preventable injuries.

The solution is Scottish, simple and inexpensive: it is to include in the new building regulations that are planned to be introduced in May 2005 the fitting as standard in all bathrooms of new-build and renovated properties a thermostatic mixing valve, or TMV. This wonderfully simple piece of kit has been likened to having a sentry posted in the bathroom at all times, protecting your family—a sentry who will never sleep or fail you and who is always there to protect you and yours.

The TMV has two principal functions. First, it will control water temperature flow to the bath to within 1°C in a temperature range of between 40°C and 48°C. The second function is a safety shut-off. If, for any reason, the cold-water supply is lost, the valve will close the hot-water supply in less than a second, providing a second line of defence. There are no circumstances in which hot water will flow uncontrolled through the valve.

We are proud to inform the committee that a Scottish firm was the first to develop the technology, as far back as 1925. The technology is not new or untried. To this day, the Horne Engineering valve is recognised as the industry standard, against which all newcomers in the field test their product.

There has been much deliberation and many studies have been done on different methods of preventing bath scald injuries. The most in-depth survey carried out in the United Kingdom in recent times was the Wakefield district burns and scalds prevention project, which was funded by the Department of Trade and Industry and the Royal Society for the Prevention of Accidents. The report has just been published and I forwarded a copy to the committee clerk today to assist members with their deliberations.

The report deals with three different approaches to scald prevention: education, engineering and enforcement. It concludes:

"Undoubtedly, the use of TMVs" (the engineering solution) "had the greatest impact on reducing the risk of scalding by reducing the outlet temperatures."

The report continues:

"The reluctance of parents to allow TMVs to be fitted in their homes" (because of lack of knowledge about the valves) "highlights the need for legislation to provide a permanent and effective solution to these preventable accidents."

On behalf of the children of Scotland, I ask members not to prevaricate on this matter and, please, to engage in the sincere effort to have fitting of thermostatic mixing valves included in the May 2005 building regulations.

Government figures predict that an estimated 27,000 new homes will be built in the private sector in the next four years. Many thousands of homes will undergo renovations that will require building warrants. Over the next four years, an opportunity exists to build a safety fence in more than 40,000 homes by fitting TMVs. Conversely, there is the potential to lose, unforgivably, the opportunity to get rid of the ambulance down in the valley.

I ask you to afford the children of our country protection equal to that which is afforded to you and your colleagues here in this magnificent new centre of democracy. No one will ever suffer a scald injury in this place, because those responsible for the future operational care of the showers and bathrooms in the building had the foresight and good sense to ensure that TMVs were fitted here for your safety.

Thank you for your time. I hand over to Dan Ferguson, who will say a little about his experience.

**Darren Ferguson:** Ladies and gentlemen, I have undergone 59 major operations, numerous minor operations and laser surgery. When I was a youngster and I was due to undergo an operation, I found it difficult to concentrate on school work before the op. When I am in pre-op, I am always anxious because I know that no matter how skilful my surgeons are, I will always be in pain when I awake—that is guaranteed. When I go to sleep, I know that I will be in pain when I awake.

When I am recovering from operations, I cannot disguise the fact that I have been injured or have recently undergone surgery. That is a fact of life for me. The constant staring, by kids and by grown-ups who should know better, makes life difficult for me, but I have come to accept how I am, and if others have a problem with my appearance, that is their problem, not mine. My physical injuries are plain for all to see, but I have others that cannot be seen. I was robbed of my childhood because I had to grow up and face things that none of my friends had to face. The injury that cannot be seen is the suffering of my family; no member of my family has been unaffected.

I understand that it would cost about £80 for TMVs to safeguard a family home. My hope is that politicians will listen to my story and realise that this petition is just plain common sense. How can anyone say that 21 years of physical and mental pain, a lifetime of disfigurement and the huge cost to the National Health Service are not worth an investment of £80 to save children and families from having to endure all that I and my family have had to suffer? Thank you for allowing me to tell my story.

**The Convener:** Thank you. I will take questions from the committee to explore the issue further.

**Jackie Baillie (Dumbarton) (Lab):** This is a highly persuasive case and we have heard some powerful testimony this morning. I have two questions. My first is to Ken Stewart, because having an appreciation of the scale of the difficulty would be helpful, as would hearing what he feels is the most appropriate way forward for the Parliament. My second question is to Alan Masterton. The former Transport and the Environment Committee took evidence on the Building (Scotland) Act 2003. Did you raise the issue with the committee at that stage? If you did, what was the response? Obviously that was a legislative vehicle that would have been ideally suited to addressing the petition.

**Alan Masterton:** No. To be honest, we have been involved in the campaign only for the past year. We were really on the fringes of things last year but, having read everything that there is to read on the subject, we could not understand the hold-up.

Every year the Scottish Burned Children's Club takes 20 to 30 kids on a camp and we see at first hand the results of bath scald injuries. Ken Stewart sees them daily and we just felt that

something had to be done. We have a simple, inexpensive solution and the club cannot understand why it has not been adopted.

**Mr Ken Stewart:** I had the information and statistics division collate the data for Scotland for the past five years. There were approximately 1,700 presentations to accident and emergency departments of children under 14 with burns. Of those cases, 121 related to tap water or bath water scalds; that is 7 per cent.

I have the figures for admissions to Edinburgh sick children's hospital for the past five years, which show that 17 per cent of admissions related to tap water or bath water scalds. In other words, burns from falling in a bath are generally more severe than they are from a hot cup of coffee. We classify burns according to the percentage of body surface area that is affected. Often, the percentage from bath water scalds goes up to 60 or 70 per cent, whereas a hot cup of tea will rarely cause more than a 10 per cent scald.

How deep and disfiguring a scald is depends on the temperature of the water and the duration of contact. If a helpless individual falls in a bath, they tend to be in contact with the water for a significant period of time, so not only are the percentages greater, but the degree of disfigurement is greater. Each scald is an individual tragedy. You have heard Darren's testimony. If you came to my clinic on a Friday afternoon, I could give you more examples.

There is also significant mortality. Unfortunately, every few years we have a child die of toxic shock syndrome related to scalds. The elderly in nursing homes and so on are also a vulnerable group. Every year in Scotland an elderly person dies from being immersed in hot bath water.

**Jackie Baillie:** In your view, are TMVs the answer?

**Mr Stewart:** TMVs will not prevent scalds from hot drinks, such as hot cups of tea and coffee, but they will prevent 20 per cent of hospital admissions. We are not suggesting that they should be universally applied in every household, but we are asking for a progressive approach to be taken, and for them to be applied to new builds, so that ultimately every house will have them. That would prevent 20 per cent of children's hospital admissions, representing some of the severest thermal injuries.

**Mike Watson (Glasgow Cathcart) (Lab):** I have a couple of follow-up points related to Jackie Baillie's points. Are you aware of the valves being used anywhere else in the world?

**Alan Masterton:** Yes. They were originally created for use in institutions that were the precursor to the National Health Service. They go back to the days of steam, when calorifiers produced steam in laundries. Steam was used to heat water, but the water was being heated to boiling point, and it could not be used in the kitchens and laundry rooms. Initially, TMVs were called blenders, and were introduced to bring the water that was super heated by the steam to a temperature that they could cope with. In England and Wales, there are regulations to have them fitted in old folk's residential care homes. The vast majority of the general public is unaware that TMVs are available, as they are not marketed to them, so many plumbers' merchants do not carry them, because there is no demand. That was one of the problems in the Wakefield experiment. When people find out about TMVs, they think that they produce cool or tepid baths, so there is initial resistance, but once they are fitted and people see that you can have a hot bath without having a scalding bath, they gain wide acceptance. You cannot disagree with the figures, especially in the Wakefield report. In the 200 homes in which TMVs were fitted, there was not one, single hot water scald injury in two years.

**Mike Watson:** My other questions are on the practicalities. I seek clarification on what you are asking for: you are suggesting that the Scottish building regulations that will come into force in May next year should demand that every new house built after then should fit TMVs.

**Alan Masterton:** That is correct. We are not asking for the policy to be retrospective; we are saying that it would be a damn good start if, as of May next year, a condition of the granting of any new building application or application for a renovation should be to install such a valve. A gradual approach should be taken. We honestly believe that once people get used to having TMVs in their homes, the news will spread and people will see the benefits. I hope that, through time, every home will have one.

**Mike Watson:** Darren Ferguson states in his letter that his understanding is that it will cost about £80 for a TMV to protect a normal home. Would that include the cost of adapting an existing home water supply?

**Alan Masterton:** No. The question is a bit like asking how long a piece of string is. I have the entire set-up in front of me. Currently, the valve costs £80. If a residential home bought 50 valves, they would cost £80 each. Economies of scale mean that the manufacturers reckon that they can bring the cost down to the region of £50 and maintain their profit margin. It would probably cost another £100 to convert an existing property, as it would be necessary to modify the existing plumbing.

To fit the mechanism into a new-build home would cost nothing extra other than the price of the valve. It would be as easy to plumb in the valve as it would be to run a bath or a shower as they are currently plumbed; other than the price of the valve, it would make no difference to the cost of the plumbing.

**Mike Watson:** I have a final question. You might not be able to answer this question, but do you know what it would be necessary to do to introduce a requirement to install such valves to the building regulations from 2005? I see that guidance has been issued subsequent to the passing of the act. What steps would need to be taken between now and May 2005 to have the fitting of such valves included in the regulations?

**Alan Masterton:** I cannot say what the legislative process would be.

**Mike Watson:** I understand.

**John Farquhar Munro (Ross, Skye and Inverness West) (LD):** There is no doubt that you have highlighted a serious problem. The remedy is simple, if it is accepted. I am sure that any reasonable individual who was considering the regulations would not fail to support what you have suggested.

You referred to bath water. I can see that it would be simple to fit a thermostatic mixing valve to control the water that flows into the bath, but what about the rest of the house? I am thinking of the kitchen sink and the wash hand basin in the toilet. Could the valve control all water outlets in the building?

**Alan Masterton:** Yes. The company recently fitted one to Darren Ferguson's home. Because of the legionella threat, the valve can only be fitted within 2m of the outflow, but it can be fitted strategically in the bathroom, so that it can feed the sink and the bath; as long as the outflow is within 2m, one valve can take care of both.

Another valve would be needed for the kitchen sink. However, research shows that higher temperatures are often required at the kitchen sink to deal with grease and other horrible things that stick to cooking utensils. The temperature of the water that is delivered when a valve is fitted would not handle such cleaning. We appear before the committee today to try to have the mechanism fitted to baths; it will not be a panacea for all scalds and burns. However, if we fit the valve in bathrooms, it will save 20 per cent of kids from turning up at hospital. That is good enough for us to be going on with for the time being.

The valve could be fitted in several bathrooms and in the kitchen. If someone who has a dishwasher wants to have added safety at the kitchen sink, they could let the dishwasher handle the stuff that needs hot water and have a valve fitted at the sink. That would not be a problem.

**John Farquhar Munro:** Is it correct that the valve comes with a preset temperature setting that cannot be interfered with?

**Alan Masterton:** It can be interfered with to suit the environment—the blue bit at the bottom of the valve is used to alter the setting. In Wakefield, where there are lots of old properties with cast-iron baths and single glazing, it was found that the temperature that was delivered from the valve had to be towards the upper limit at the point of outflow to maintain a bath temperature of about 42°C, which is a hot bath. In Scotland, especially in new-build properties with plastic baths, double glazing and insulation, the delivery temperature could probably be screwed down. The engineer or plumber sets the temperature at the time of fitting. Once the temperature is set, the cap goes back on and a special security key is needed to get into the valve to adjust the temperature.

**John Farquhar Munro:** That is really just a copy of shower units, which have a temperature control.

**Alan Masterton:** No, they are not the same, because the valves do everything internally. I referred to them as simple, but they have a fairly sophisticated temperature-control mechanism in the centre that does everything automatically—nothing has to be varied.

**John Farquhar Munro:** Thank you. The case you have made this morning deserves serious consideration and I am supportive of it.

**Helen Eadie (Dunfermline East) (Lab):** I apologise for arriving after you started, Mr Masterton. Like my colleagues, I find your case compelling. You say that you envisage valves being installed in every new-build property, but given what you have said this morning, is there a case for it to be compulsory for valves to be fitted retrospectively in all care homes and hospitals?

**Alan Masterton:** I agree whole-heartedly, but we are realists and we would hate to lose the opportunity to get the valves into bathrooms by asking for too much. I do not mean to be disrespectful, but the fewer committees that the proposal has to go to, the better. More and more problems will be created if we ask for more and more. Of course, it would be superb to put the valves into care homes, because the elderly are another section of society that is susceptible to horrific burns. The incidence of death from such burns is high among the elderly because of toxic shock. The suggestion would have untold benefit.

We should bear in mind the fact that the valves have two functions: they control the temperature within a 1°C margin; and they act as a shut-off valve, so that if, for any reason, the cold water is cut, the valve will not deliver hot water and will close in less than a second. In an old folk's home in England, an old chap turned on the hot and cold water in his bath and went to take off his clothes, but, unknown to him, the water company was working in the street and closed off the cold-water supply. When the man stepped into the bath, the shock killed him because pure hot water had gone in. If a valve had been fitted to his bath, the incident would not have happened, because the safety feature would have shut off the hot water automatically when the cold water was shut off.

**Helen Eadie:** You are absolutely right. Some years ago, exactly the same happened to an old lady in a care home in Fife. Last week, I was in a hotel where the water was absolutely scalding. None of us has mentioned hotels, but they should also have a duty to install such valves.

**Alan Masterton:** It is estimated that in 92 per cent of Scottish homes, hotels and institutions, the hot water is at a temperature that would scald a child in less than three seconds.

**Mr Stewart:** Many scalds happen to children of families who are living in temporary accommodation. Significant legislation exists on multiple-occupancy homes and it could be argued that the valves should be made compulsory in rented accommodation. Accidents often happen when families move into temporary accommodation, because the usual safety mechanisms that families inevitably build up suddenly disappear. Such families are a very vulnerable group.

I agree that it would be ideal to install valves in schools, old people's homes, hotels and such environments. However, if an environment can be created in which the valves are the accepted norm, the lawyers will take care of the rest by ensuring that nursing homes, for example, do not dare to take care of people without having valves fitted.

**The Convener:** We have heard a convincing argument, but to whom should we send the petition to progress it?

**Jackie Baillie:** I would like to say a number of things before I make recommendations. Unfortunately, there has been a missed opportunity with the Building (Scotland) Act 2003. That said, we must clarify whether the matter is for primary or secondary legislation. The opportunity has not been entirely missed if it is for secondary legislation.

Rather than pre-empt what the Executive will say to us, I suggest that the committee seems strongly to support the measures that have been outlined and that it takes the petitioners' view that the issue should essentially be about TMVs attached to baths in domestic households. It is right to say that doing what is proposed will change the accepted norm. If we propose something that is retrospective and too wide, it will be difficult to deliver, so to deal with the narrow point would be right. We should therefore write to the Scottish Executive to say so and to ask whether it can introduce secondary legislation. We should also write to the Scottish Building Standards Agency. That would probably be enough at this stage, although I would be keen for Ken Stewart to supply some data and an estimate of costs for when the committee considers the matter again. I do not mean information on the cost of valves but—aside from the human costs that we have heard about today—the costs to the national health service of not taking action. That would be helpful in making a case.

**The Convener:** I apologise to Michael Matheson. I indicated that I would call him to speak before we discussed recommendations, but I forgot to come back to him.

**Michael Matheson (Central Scotland) (SNP):** Perhaps I can assist the committee with a couple of points of clarification about the Building (Scotland) Act 2003 and how it operates. From my experience of dealing with fire sprinklers, provisions on which will be introduced into that act next year, I understand that the legislation acts in effect as a framework into which new building regulations can be inserted. If ministers were inclined to pursue the introduction of thermostatic mixing valves through regulations, they would publish draft regulations, consult on them and then insert them into the act through a statutory instrument. Therefore, the matter is for regulation rather than primary legislation.

In discussing the petition, we have debated whether what is proposed should be applied retrospectively. As I said, I have experience of pursuing proposals relating to fire sprinklers. If the main objective is to try to get thermostatic mixing valves installed into the 40,000 houses that will be built over the next four years, we should start the process. The ball is rolling and we can start to change the culture of thinking about what we should do in other properties when they are being renovated by local authorities, for example. The Scottish Burned Children's Club has decided to pursue a progressive approach to try to change thinking on the matter.

It may be helpful for members to be aware that the Office of the Deputy Prime Minister is reviewing the relevant English and Welsh regulations. I understand that the issue is not so much about whether valves should be installed, but that the regulations are being reviewed with a view to trying to identify what might be the best valve to install. No comparable review is taking place in Scotland. I understand that the Executive is likely to say that it will await the outcome of the ODPM's findings but, given the experience to date, it seems that the case for installing the valves has already been well made and that they have a history of being effective. It seems rather pointless to drag out the matter for another couple of years by debating which valve should be installed.

**Alan Masterton:** The specific valve that Horne Engineering Ltd produces is available in Scotland now and exceeds the standard of the valve that has been considered for the English and Welsh legislation.

**John Scott (Ayr) (Con):** I, too, am concerned about what the petitioner says and am convinced of its value. I also sat on the then Transport and the Environment Committee when the Building (Scotland) Act 2003 was considered. You will be aware that guidance was published on 1 November, following that legislation.

Jackie Baillie suggested that we write to the Executive; I think that she is right, but I think that our letter to the Executive should also seek clarification of whether the guidance that has been issued is intended to instruct, in the most general sense, that such appliances be fitted. It appears that the petitioners did not submit evidence to the then Transport and the Environment Committee during the consultation or in person, but it may well be that others did.

It may also be that the guidance is intended to cover what we are being petitioned about. The guidance states:

"Every building must be designed and constructed in such a way that protection is provided for people in, and around, the building from the danger of severe burns or scalded from the discharge of steam or hot water".

That guidance was issued on 1 November, and it may be that that covers your concerns. I feel that we need clarification on that from the Executive. I certainly support what the petition says, because I was unaware of the valve when I served on the Transport and the then Environment Committee as the Building (Scotland) Bill was going through Parliament.

**The Convener:** It is worth pointing out that the information that the clerks have is that the guidance does not refer specifically to TMVs, so that would have to be clarified with the Scottish Executive.

**John Scott:** Given that other such valves are apparently on the market, the Executive may have wished not to be specific.

**Alan Masterton:** There is nothing on the market that performs as that valve does.

**Mike Watson:** My concern is that we should move on the matter as quickly as possible. I am aware of what Mr Masterton has said about not wanting to be pushed from pillar to post. We do not want further delays and May 2005 is a possible deadline for achieving something.

The committee's record on securing swift responses from the Executive is not great, which is no reflection on the clerks. I wonder whether there could be a more direct approach, perhaps by the petitioners themselves, to get a quick response so that something can be done by 2005. That deadline is less than six months away. Michael Matheson may be able to tell us whether

the regulations are updated every year under the legislation. When would the next opportunity be, if the May 2005 deadline were to be missed for any reason?

**Michael Matheson:** I do not think that the regulations are formally reviewed every year—they are reviewed if there is a requirement for change. A working group was established this year, which has responsibility for informing ministers of possible updates to the regulations as and when necessary.

**The Convener:** If necessary, I write about petitions directly to ministers rather than to officials. If we have a general query for the Executive, it would go to the officials in the relevant department. It has sometimes been necessary for me to write directly to the minister. In that letter, I can ask for a speedy response. Would that satisfy you?

**Mike Watson:** I think that it would.

**The Convener:** I would be happy to do that.

**Helen Eadie:** I am happy with that and with other suggestions. Another suggestion is that we write to the Thermostatic Mixing Valve Manufacturers Association and to the Scottish and Northern Ireland Plumbing Employers Federation. In my own home, I have a boiler that I can alter simply to adjust the settings to the appropriate water temperature. I believe that all boilers for the past 20 years have been able to do that, with both gas and electric thermostats. It might be helpful to get a view from those organisations on that.

**Alan Masterton:** Boiler temperature must be maintained above 60°C to dispel the possibility of legionella. That means that whatever happens, the boiler cannot do the job that the valve does. The heat source must heat the water to a temperature in excess of 60°C and the water must be carried through the pipes at a temperature of 60°C. The valve must be fitted within 2m of delivery, which is the pipe length that the federations regard as being safe if the water temperature is to be less than 60°C without risk of legionella.

**The Convener:** Do we agree to write to the appropriate people, as members suggested?

Members indicated agreement.

**The Convener:** Mr Masterton, members of the committee appear to be well convinced by your presentation. We will pursue the matter and get back to you when we receive the responses that we seek. Thank you for your time.

**Alan Masterton:** Thank you.