DoE PROJECT 10B
WATER ECONOMY

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Prepared for:

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Compiled by:

S Champion
S Whittome

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SUMMARY AND RECOMMENDATIONS

A programme of twenty four personal interviews and three telephone interviews was carried out with key personnel in different sectors of the UK sanitary ware industry, to assess the potential impact on the industry of relaxing regulatory requirements.

Two main issues emerged which centred around reduction of flushing volumes and the introduction of discharge valves.

It was generally agreed that prospective changes to regulatory requirements from those in the byelaws would open up the UK market for foreign importers, especially of products with push button discharge valves. However the extent to which this would be so varied with the type of respondent. Thus, manufacturers considered that the market would be "flooded with cheap imports," whereas distributors and importers tended to see the change as more a continuous trickle rather than a flood. In fact it appears that products from abroad are already entering the WC market and will continue to do so, despite our "local" product differences, such as the prohibition of the discharge valve.

Most of the bathroom industry report that they are in any case currently experiencing great difficulties achieving reasonable profits, fighting, as they are, a continuous price battle. BSRIA's conclusions are that it will therefore be better for the industry to make a change sooner and with good warning, while the opportunities still exist to compete successfully at home and overseas, rather than to leave it too late. Thus, although manufacturers claim that prospective changes to regulatory requirements would result in significant commercial costs for them (which appear to be the main grounds for objecting to them), alternative marketing strategies could turn these perceived threats from abroad into opportunities. This is so especially given that excluding foreign products, through regulation, is by no means guaranteed to halt the threat, but is likely only to slow it down somewhat. Those that would suffer most from letting discharge valves into the UK would be Thomas Dudley (and to a lesser extent Derwent Macdee). Thomas Dudley in particular depend for much of their business, on discharge valves being excluded so that they can provide a service for importers, advising them how best to adapt their product to a British market.

Reduction of flushing volumes would seem to incur rather more costs on the part of the manufacturers than would allowing discharge valves into the UK. Pans need to be redesigned and manufactured better, in order to flush effectively with syphons at lower volumes. BSRIA however believes it is possible to do so, judging from experience of foreign products flushing on less water. However there is evidence that the major UK suppliers are still working on getting their 7½ litre designs right and, while they remain less than adequate, more water is often used as systems are flushed twice.

Because of the costs to manufacturers in redesigning pans and seats (which is more costly than redesigning cisterns for discharge valves), BSRIA recommends that the DoE communicate any final required maximum volume at the outset, of any changes revised, rather than introducing reductions piece meal, where possible. It would minimise the costs of any redesign work, if changes can be made all at once.
Possible suggestions for DoE to adopt when making changes to the regulatory requirements are:

- to stipulate a requirement for an external overflow outlet with any permitted discharge valves, in order to make any leaking obvious
- to permit installation of discharge valves only in properties which are water metered
- to implement any requirements for reduced flushing volumes in one step rather than in gradual steps
- to encourage European harmonisation of testing standards and regulatory requirements
- to provide sufficient notice to all industry sectors so they can adjust as necessary. BSRIA believes a transition period of three to four years would be necessary. In which case, although it would be clumsy, legislation would have to continue enforcing the existing byelaws for a period.
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1. **INTRODUCTION**

1.1. **BACKGROUND**

This report documents the fourth and final stage of the Department of Environment’s Project 10B, to investigate water economy criteria for various WCs and to advise on the commercial and manufacturing implications for the industry, of changing the regulatory requirements of the water byelaws.

The background to the project as a whole is the replacement of the UK water byelaws. When they expire from 1996 onwards, the water companies (as they now are) will no longer have power to make byelaws. Consequently, there is a need for information with which to review the relevance of the existing water conservation requirements, particularly in the light of recent technological advances in Europe and the rest of the world. The Construction Products Directorate, the ultimate customer for this research has a policy of stimulating and supporting best practice, R & D and innovation throughout the industry.

Prior to this project, the Department commissioned a report on "Low-water-use washdown WCs" which was published in 1987.

1.2. **AIMS AND OBJECTIVES**

The overall aim of this fourth and final stage of the project was to investigate the commercial and manufacturing implications for the relevant UK industries of allowing the introduction of new types of WC systems into the UK.

Specific objectives were:

(a) expected change in product(s):
   - range
   - type(s) of WC
   - price
   - distribution systems
   - quality
   - aesthetics
   - noise

(b) expected change in overall internal market, both long and short term:
   - changes in overall demand (increase or otherwise)
   - likely market segmentation
   - product requirements
   - perceived benefits or otherwise of likely changes
(c) identification of major threats to UK industry in internal market:
   • who would be the major competitors
     - manufacturers
     - retailers
   • any other threatening factors
   • UK's strengths and weaknesses vis à vis competition

(d) impact on manufacturing process:
   • ease of adaption of existing plant
   • relocation/expansion/contraction of existing plant/site (even to other countries?)
   • lead time for new manufacturing operation
   • staff implications, (new? more? training?) particularly if foreign company sets up plant in UK
   • impact of possible multiple production lines

(e) implications for import industries:
   • increase/decrease in competition
   • changes in potential suppliers
   • transport and any other issues

(f) expected change in potential market for export industry
   • new opportunities
   • change in size
   • location of new markets, which countries
   • characteristics of new market/likely segmentation
   • product specification requirements of new market
   • perceived set up/running costs to enter new markets
   • any transport or trade issues
   • noise issue

(g) likely commercial implications for manufacturing retail and related industries, both short and long term
   • costs of adaption of plant
   • change in costs of production, once geared up
   • commercial implications of changes in stockholding, distribution, transport, quality assurance, R&D, marketing, installation and maintenance
   • expected consequential change in corporate strategy, long and short term, (eg. diversification vs increased specialisation)
   • perceived advantages of proposed changes in byelaws
   • perceived disadvantages
1.3. **SCOPE AND LIMITATIONS**

This study focused primarily on the major UK manufacturers and distributors of WCs as well as some end-users, looking at the effects of potential regulatory changes on them. It also investigated the views of importers, component suppliers and industry bodies.

The findings which follow are an accurate reflection of the views put forward by all of the key sectors of the UK based industry. However, it must be borne in mind that the views put forward (which often conflict) may not necessarily represent the true state of affairs, for the following reasons. Respondents views, however, honestly given, may be mistaken. Respondents may have been obliged to offer the company view rather than their own. Finally, respondents may be offering a perspective that is merely one that they wish the Department to hear, and believe.

In other words, the information given, particularly from manufacturers, may be limited by what respondents are willing or able to divulge, and by personal or company "agendas" (ie. what they would **like** the Department to believe is the case). That said every attempt has been made to compensate for this in the selection, interviewing and analysis stages of the research. However, believing that the Department will wish to be aware of all the different arguments being offered in this increasingly public debate, the authors have included a full account of the views put forward by each different "camp". Where views conflict, BSRIA has put forward its own analysis of the situation, highlighting that this is the case.

Information about foreign manufacturers is limited to that obtained from a very few interviews. This is due to the Department deciding that, since interviewing representatives of these companies was cause for concern on the part of the UK manufacturers, interviews should be curtailed.

In addition, the lack of specificity regarding the **exact** nature of any new regulations has limited the degree to which effects and implications can be completely assessed.

Nevertheless it is BSRIA's view that the findings represent very comprehensive information with which to inform the DoE's consultation and evaluation process. Further research could of course be undertaken once likely specific regulatory changes are known, however great care would need to be taken given the sensitivity of the issue.
1.4. METHODOLOGY

24 personal interviews and 3 telephone interviews were conducted with appropriate personnel from the following organisations:

**UK Suppliers**

Armitage Shanks Ltd  
Caradon Bathrooms Ltd  
Ideal Standard Ltd  
Shires Bathrooms Ltd/Trent Bathrooms Ltd  
Spring Bathrooms plc  
Villeroy and Boch UK Ltd

**Merchants**

The Graham Group plc  
Plumb Center - (Wolseley Centers Ltd)  
Travis Perkins Trading Company

**Factors**

H & S Distributors Ltd  
Broughtons Ltd

**DIY "Sheds"**

Texas Homecare Ltd (*)

**End User/ Specifiers**

Anchor Housing Association  
Bath City Council  
Land Securities Properties Ltd  
George Wimpey plc

**Industry Bodies**

British Bathroom Council  
Water Byelaws Committee

**Cistern component suppliers**

Thomas Dudley Ltd (Syphons)  
Dal (Valves)  
Derwent Macdee Ltd (Syphons) (*)
UK Exporters

Armitage Shanks Ltd
Caradon Bathrooms Ltd
Derwent Macdee Ltd (*)

International Supplier

Ideal Standard Ltd

Importer to UK

Villeroy et Boch UK Ltd
Karat
Original Bathrooms (*)

As well as the above interviews, regular meetings and discussions were held with others working on different stages of the project, follow-up telephone calls were made to cross-check and add to interview data, where necessary, and a detailed tour of the Ideal Standard factory in Hull was also made. Respondents were sent an initial brief prior to the interview in order to allow them time to source any necessary information and think through the implications of key questions. This helped to maximise the usefulness of the data obtained during the interviews.

All interviews and follow up calls were carried out by Sara Champion between February and July 1995.

(*) Indicates phone interview
2. THE INDUSTRY TODAY

Approximately 88% of the UK WC market is currently supplied by UK manufacturers and 70% of the total supply is concentrated in the hands of only 5 major suppliers. The distribution structure is complex with, as one supplier put it "in principle everyone supplying to everyone else", although some channels are more common than others.

The trend in distribution appears to be for a shorter chain of distribution and a smaller number of larger operations, ie. greater concentration.

Manufacturers reported that, in common with other industries, the WC industry has undergone many changes over the last 10 years. Contraction of the market in the last decade has resulted in factory closures for Armitage Shanks and Caradon, with corresponding staff reductions.

Moreover, significant retooling and investment have taken place due to changes in regulatory requirements. Specifically, this has arisen from the move from 9 to 7½ litres maximum flush, as well as the introduction, and then withdrawal of requirements for dual flushing systems, which manufacturers claim to have already suffered over commercially.

The bathroom industry also reports reductions in sales as a consequence of the general reduction in activity in the house building sector, combined with the reluctance of householders to spend on refurbishment. WC sales have also been affected, to a lesser extent, by reduced output in the commercial building sector.

Partly as a consequence of the above, the majority of WC sales are "commodity products" i.e. very basic products, with price being the determining factor. One supplier considered the commodity proportion of just under 70% as part of the following market segmentation.

<table>
<thead>
<tr>
<th>Table 1 Market segmentation of WCs</th>
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<tbody>
<tr>
<td><strong>Domestic</strong></td>
</tr>
<tr>
<td>Commodity</td>
</tr>
<tr>
<td>Mid market house improvement</td>
</tr>
<tr>
<td>Luxury</td>
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<tr>
<td><strong>Commercial/Specification</strong></td>
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<tr>
<td>(Hotels/airports etc)</td>
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</table>

A new company, Spring Bathrooms, entering the market about 10 years ago has increased competition.
Suppliers and distributors report that they are "currently suffering from the market being largely price-driven".

The national stock of WCs is in the region of 60 million and is replaced at the rate of approximately 2% a year. The low rate of replacement is partly due to the comparatively high life span of a WC system (between 25 years - 30 years) as well as the lesser importance placed on the bathroom by the British, as compared to their European neighbours. The market is split between renovation and new build, to a ratio of 4 to 1 in favour of renovation. In the words of one distributor, "a bathroom suite which lasts a lifetime, costs the consumer less than a washing machine, which lasts 7 years" i.e. the bathroom is a comparatively cheap product in the UK. European householders, on the other hand, are prepared to pay considerably more for their bathrooms, which has potential implications for trade between the two.

Suppliers explained that the manufacturing process is currently very reliant on economies of scale. It is both volume sensitive and labour intensive. Thus, of course, in order to operate a tunnel kiln economically, it needs to be run on a full load, and run continuously. Example operating figures quoted are £24 average selling price for vitreous china units, of which only £4 is variable cost. Currently, approximately £28M worth of WC equipment is exported from the UK annually.

As regards the current byelaw requirement, it appears that most manufacturers currently already manufacture a 6 litre system, often for export, although BREEAM has driven this somewhat.

Suppliers report cases of specifiers and end users installing discharge valves, contrary to byelaw requirements, (particularly on new-build sites) by temporarily replacing the offending component with a cheap substitute, for inspection purposes. After approval by the inspector, the system is replaced with a discharge valve. At present, products with discharge valves (where included in the product range) tend to be aimed at a particular niche. They provide the distributor/retailer with product differentiation giving him the ability to sell an exclusive product at a premium or alternatively, a product for customers either originating from abroad, or having travelled abroad, preferring the alternatives they experienced there.

On the general subject of imports, the DIY outlets are already supplying increasing numbers of imported products at the top and bottom ends of the market. At the cheap end, B&Q supply Karat from Thailand, and Texas supply, for example Topravit products from Turkey. At the quality end of the market, bathroom boutiques are supplying increasing numbers of products from European suppliers such as Cesame, and good margins at low volumes appear to be achievable. In fact there appears to be very strong evidence that the market is already significantly shifting towards greater supply from abroad.

One plausible argument propounded by the importers is that the prohibition of continental-type WC systems is merely slowing down a process that is inevitable. British suppliers are acting rather like King Canute, and it would actually make more
sense to confront the situation, tackling it head on. An article in April's "Magazine" quoted one Turkish supplier as currently aiming for a 5% share of the UK market, having already increased their UK supply from 10,000 pieces in 1992 to an estimated 200,000 pieces in 1995, even despite experiencing problems with transporting sanitaryware 3,500 miles. They have a retail base of 300 dealers, which is half their targeted number.

During the interviews it became very apparent that manufacturers, component suppliers and some distributors are resistant to change in types of WC permitted. Some expressed the view that the industry has already suffered the consequences of enough legislative changes which may not even stop there but lead to yet further changes, with all the corresponding impacts on investment and retooling. Furthermore, there is a fear that if the byelaw requirements are changed to require reductions, yet further reduction in flushing volumes may ensue at a later date, with the corresponding costs. There were also strong concerns about any implications for price reductions in an already price-driven market. There appeared to be a very strong belief in, and therefore commitment to, the technical superiority of the syphon. These issues will all be explored in later sections. However, the point to be made here is that for various reasons the industry appears highly committed to doing things the way they have always been done.

In conclusion, the topic of change brought forth an unusually high level of emotion from respondents. This is, in itself, an important point to note when considering how to implement and communicate any changes in the byelaws.

Because of this, manufacturers "views" are covered fairly extensively in what follows on the basis that the DoE will wish to know exactly what they claim, even where they, or BSRIA may disagree.

A crucial role is played by Thomas Dudley, who claim an informal industry advisory role, based on their own extensive testing of the performance and compatibility of different pans with different cisterns and their own syphons. They offer this claiming that it is not in their own interest if a toilet system fails through incompatibility of pan and cistern, for example, since their own component part may (albeit wrongly) be blamed. In addition they advise on correct installation of systems. They claimed that they could no longer provide this service if large quantities of new products entered the market.

However, Thomas Dudley have a large stake in maintaining the status quo. A key part of their business is derived from advising foreign manufacturers as to how best to modify their sanitaryware for the UK market. This consultancy service (without which foreign suppliers are unable to enter the UK market) is currently providing a bottle-neck, on the basis that the company cannot keep up with the demand for this service. One importer believed that it is this, rather than the prohibition of the

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1 Kitchen and Bathrooms Magazine, published by EMAP
discharge valve, that is actually forming the strongest barrier to entry for foreign suppliers.

An inspection of the Water Fittings Directory confirms that the majority of imported products are fitted with Thomas Dudley syphons.

Reported current marketing strategies include reduction of the number of product variants and positioning of bathrooms as a lifestyle product in order to drive a move away from WCs as a largely "commodity" product, (ie. very basic product).
3. WATER CONSUMPTION ISSUES

There was a range of (often opposing) opinions regarding potential savings in water consumption achievable by relaxation of water byelaws. This was so both for discharge valves instead of syphons, and also for further reduction of flushing volumes. This section provides a complement to stage three of the project. Where stage three discusses technical implications based on scientific testing, this section explores instead the stated views and beliefs of the key industry sub-sectors. It is important that the DoE are aware of these views as they contribute to the commercial aspects and arguments discussed in this section, as well as later on.

3.1. DISCHARGE VALVES

Manufacturers and component suppliers were insistent that discharge valves always leak eventually and sometimes very quickly. This happens either when the rubber seal wears away, or when a piece of grit is lodged on the seal, or when the valve does not return to its correct seating. The latter two incidents cause only temporary failure and can be corrected by flushing, but only if the dwelling is occupied and the leak is noticed.

Most manufacturers expressed considerably more confidence about the more expensive, "quality" valves sold by, for example, Geberit and Dal. But, nevertheless, they express very strongly, almost with one voice, the view that allowing use of discharge valves wastes water despite the evidence that a drop valve can save water when one looks at performance over its whole lifetime. They also expressed concern that these valves tend to be fitted with internal rather than external overflow pipes, which again allow water wastage when inlet valves fail. However, as one respondent said, discharge valves can be designed to operate with external overflow pipes, at least external to the WC unit. All respondents claimed that their views were derived from extensive in-company tests on these valves, conducted by themselves. Many again felt that laboratory tests can never match real-life situations and settings. A final point was that for some reason, cistern fittings seem to fail disproportionally more frequently when the householder is on holiday, implying a need to, perhaps, education to turn off the water supply, before leaving the house for extended periods. However the most serious argument against them appears to be the external overflow pipe issue, signifying, perhaps, a need to stipulate that valves are designed to overflow externally or are closely specified.

An opposing view about the reliability of discharge valves was held by a smaller number of respondents, representing companies without capital investment in syphons. They believed that suppliers were reacting from fear of commercial costs to themselves rather than worries about water issues. Some believed specifically that it was only the cheap discharge valves that were the real worry and that the quality valves posed no threat either way to water economy or to suppliers, although this will be discussed further later. The most powerful argument in favour of discharge valves is that they enable a user-friendly dual flush system to be installed. One importer
pointed to New Zealand where such a system averages approximately 4 litres a flush, with tremendous water savings.

Leakage only occurs, if at all, for the odd week, which, when seen in comparison to water saved over the 7 years average life span, is relatively insignificant. The nuisance factor of the extra noise or limescale build-up, combined with water-metering would drive the occupier to change the valve. Water wasted through leakage is therefore insignificant, claimed this importer, and replacements of worn valve seals would be driven by the introduction of water meters.

3.2. **FLUSHING VOLUMES**

There was divided opinion whether reducing flush volumes would reduce water consumption. (Other issues such as commercial implications are explored in later sections). The more conservative suppliers explained that they were already receiving complaints from customers and distributors regarding the reduced efficacy of their 7½ litre syphon operated systems. Marks are left on the ceramics after the flush. These suppliers argue that because, in their experience, six litre flushes are less effective, consumers will actually flush twice and thus use more water. The consequence of extra complaints caused by the reduction to 7½ litres was corroborated by two of the distributors. The distributor of Cesame products was also opposed to a six litre flush even with discharge valves on the basis of reduced performance. However it is in BSRIA's view more a matter of research and development in order to optimise the design. This seems to be borne out by the fact that Spring Bathrooms, being a relatively recent entrant were quite happy about the concept of a six litre flush since all their own syphon operated systems operate on six. However, they did express concern over any further decrease on the grounds of efficacy. Shires were also happy with the principle of a six litre system and made the point that in fact every large UK supplier already makes a six litre unit. Their own previous objections had been on the grounds of extra cost involved in having to produce a more sophisticated design in order to flush effectively with a smaller volume, with the consequent price and commercial implications.

It is agreed that the design of the pan is crucial in ensuring that any reduction in flushing volumes does not lead to inadequate cleaning and clearing of the pan. Some suppliers say that no design that could function sufficiently well would be aesthetically acceptable. It would be so "basic" looking that the consumers would reject it. This, they argue, would be seen as a backward step in terms of consumer choice and sophistication. The same people mentioned the current consumer preference for lower level cisterns, on aesthetic grounds, which, however, would offer less head of water, and therefore reduced efficacy when operated on six litres. However, given the experience of importers with European and other foreign products, this does not appear to be the case. Satisfactory function at six litres appears to be fundamentally a matter of getting the design right. In any case, the inclusion of a discharge valve would appear to offset the performance lost by lowered cisterns, since the velocity of flush with a discharge valve is much greater.
A European importer made the point that it is often the basin design that is more important when buying a bathroom suite.

Several respondents stated that complaints are frequently the result of poor installation rather than design. This raises something that cropped up several times, namely the importance of installation, and therefore of educating plumbers, in the crossover to any new type of sanitaryware or plumbing system.

In the light of the above two points particularly, it would be clearly more crucial than at present that the correct pan is installed with the correct cistern, if regulatory requirements were relaxed to allow new types of WC. Many suppliers feared the consequences for them of incompetent operators (often the smaller ones) recommending inappropriate cisterns and pan combinations.

In response to the concept of flushing volumes being reduced below six litres, those opposed to reduction to six litres, not suprisingly, reacted even more strongly and argued that this would be counter productive. Those content with six litres were concerned about further reduction. However, mention was made of the possibility of progressively reducing flush volumes - first to six litres, and then to a yet lower volume, and then perhaps again. Evidently, given the manufacturing and commercial implications of lowering flush volumes, the fewer the stages involved, the less the cost to the suppliers.

In conclusion, the key issues here appear to be the design of the pan, correct specification and the contribution made by the type of flushing mechanisms (ie. discharge valve versus syphon)

3.3. DUAL FLUSHING

As previously stated the idea of saving water using dual flush systems was considered attractive in principle. The inclusion of discharge valves in the cistern means that an easy-to-use, easy to understand operating mechanism can be fitted - ie two buttons - one for three, one for six, which, in conjunction with water metering, would facilitate use for the consumer.

A small question was raised, however, as to what the user would do in a public toilet, where convenience and avoidance of potential embarrassment may override any desire to save someone else money on water bills. Habit and gradual change in attitudes may eventually encourage use of the lower volume here too, where appropriate.

Several suppliers said they would be worried whether a lower water flush with or without syphons may leave harmful bacteria unseen in a pan in which the water has not been fully changed, and lead to personal contamination of the female user, from splashes when using.
3.4. MAINS PRESSURE AND OTHER TOILET TYPES

Some UK manufacturers disliked the idea of mains pressure and similar products for reasons other than water economy. They believed, contrary to US experience, that siphonic pans would not operate with reduced flush volumes, that mains pressurised systems would introduce increased risks of back contamination of the water supply.

3.5. WATER METERING

It was universally agreed by manufacturers and distributors that British consumers could only be persuaded to (voluntarily) change their behaviour and appreciate the benefit of water economy measures, if they were water metered. This would drive both the changing of worn leaking valve seals and the use of the lower of the two volume options in any dual flushing systems that was to be allowed/required. Some expressed the belief that in order for this to happen the sensitivity of water meters would have to be enhanced, on the basis that the slow but steady drip would be insufficiently significant to register.

Without effective water metering it was expected that changes would have to be imposed by law and that these would be impossible to police. However the point was also raised that water bills appear to increase when the householder is metered. The respondent at Bath City Council expressed concern that this may lead to difficulties among the less well-off, in meeting bills. This would in turn lead to negative publicity.

3.6. ALTERNATIVE METHODS OF SAVING WATER

A point made very forcefully by several manufacturers and one distributor was that a better way of maximising the UK water supply would be to address the problem of the supposedly large volume of water lost in the process of getting the water from the water company/treatment source to the point of entry into the householders property. The figures quoted were between 15% and 30% of the country’s “treated” water, lost before it enters the occupiers’ property.

One supplier expounded the view that since water is not actually "used up" in the same way as is oil or gas, but can be treated and recycled, there is no need to save water in the first place. Other suggestions were also made, along the lines of recycling of "grey" water, desalination etc.

It was also presumed by several respondents that a certain minimum volume of water is required to transport solids through the sewage system and assist with treatment at the final destination, and that to reduce water usage too much may either raise costs or reduce hygiene standards from this viewpoint. In fact one supplier saw the whole issue as being about the point at which water economy starts to threaten health.

Examples were given by both “camps” of specifiers from countries with serious water shortages specifying their own favoured flushing mechanism system in order to
minimise water consumption. Thus Thomas Dudley claimed the Spanish ordered syphons from a water economy perspective and Villeroy and Bosch claimed Ethiopia did likewise specifying a discharge valve, albeit indirectly.

3.7. HYGIENE

The issue of hygiene came up frequently in the research with manufacturers. Fears were expressed by suppliers that in close-coupled systems with discharge valves blocked pans could lead to backing up of contaminated water, into the cistern. This would be by means of an eddy effect produced at the boundary of a stream of water leaking from a faulty valve, a theory sharply dismissed, however, by others. Once the cistern is contaminated, the theory continued, back contamination of the main supply could then occur through the inlet valve. Despite acknowledging that valves can be fitted to ensure this latter does not happen, the supplier considered it too difficult to enforce any legislation regarding installation of these valves.

Another argument put forward several times was that any reduction of flushing volumes would lead to a lower target area and volume which could lead to difficulties from marking above and just below the water level, as marks on dry ceramics are notoriously stubborn. However, the counter view was that adequate pan design would eventually iron out these problems as in the US, where they have maintained high target areas have been achieved despite operating on six litres.

Some suppliers argued that reducing the flushing volumes would reduce hygiene standards with fouling left in pans. The reduced flush option of the dual flush system raised similar concerns through insufficient proportion of liquid waste being removed.

The view among non UK suppliers and distributors tended to be that Europeans such as the Germans and others must have high hygiene standards, and that the above views were a little hysterical.

3.8. TESTING STANDARDS

Suppliers often used the supposed inappropriateness of current tests, to support their argument. They claimed that, for example, although reduced volume systems pass the water byelaw tests, recent developments in consumer behaviour have increased the quantity and variety of matter that is flushed, since the tests were devised - they claim also that unusual bowel circumstances, for example in illness or excessive behaviour are not catered for. It was said to be difficult to persuade householders not to flush certain matter such as nappies down the toilet, even when many people are aware that they probably should not do so. Convenience and/or feelings of embarrassment over-ride any feelings of guilt. However changes to labelling requirements of certain products could perhaps ban the description "flushable", and an education programme may be effective.
4. EFFECT (OF RELAXATION OF BYELAWS) ON UK WC MARKET

Respondents in supplier companies claim that if new regulatory requirements are more relaxed than those of the current byelaws, the UK market will be exposed to a large quantity of relatively cheap foreign products, mostly push button cisterns with discharge valves. Respondents talked of the UK market being “flooded with cheap foreign imports”. One supplier put forward the example of Germany where, he said, 60% of all supply is met now by imports catering to the cheaper end of the market. The combined effect of both the extra supply from abroad and the lower prices of these new products would force UK suppliers to cut their own prices, with serious repercussions both to the British sanitaryware industry and the consumer. Not only would the industry lose out but there would be potential reduction in hygiene standards and water wastage from inadequate products somehow slipping through the system, even despite proper standards and testing.

The argument is based on the premise that foreign suppliers would instantly have a significant competitive advantage if the byelaws change, due to economies of scale. Suppliers claim that importers would merely need to add to the volumes already produced by their existing process, with very little capital investment. They could produce "at the margin" and so sell very inexpensively, having already to cover their fixed costs, for example. This would, they say, undercut UK suppliers. Those that operate in factories in Thailand (Karat) and Brazil (Laufen) would take advantage of cheap labour there (in a labour intensive industry). This would more than offset the extra transport costs in shipping fragile ceramics across the world. In France, for example there is no longer any domestically owned producer with Jacobs Delafon having been bought by an international supplier - a widespread pattern which UK suppliers feared would spread to the UK. The final fear is that through years of previous experience foreign suppliers would supply highly developed products and fittings which the UK manufacturers could not hope to match for several years, and which may even be patented.

However, this view appears to be unjustifiable given that relatively high volumes of cheaper products are already entering the market, via B&Q from Karat in Thailand, for example. British suppliers have chosen not to compete with these products at the very cheap end of the market. Indications are from both the cheap end and the expensive end of the market that it has not been difficult for importers to adapt their products for UK markets. It does appear however that Karat has actually employed an English potter at their Thai base, to satisfy UK ceramics tastes.

There does appear to be sufficient evidence from the few importers interviewed that the manufacturers’ viewpoint is actually a short-sighted view of the future, both with and without byelaw relaxations. It is true that relaxation of the byelaw requirements will simplify the process of importing WCs - new cistern designs will no longer require sending to Thomas Dudley for testing with their syphon fittings prior to introduction, for example. Also the new export potential should theoretically offset
the effects of having to adapt to any increase in imports. As previously mentioned, current demand for discharge valves, where it exists (albeit often illegally), currently tends to be at the premium/luxury end of the market rather than the low-cost end and consequently greater competition would be expected to appear in this sector. Admittedly this could be seen as threatening since this is where higher profits tend to be made. However the so-called "quality" discharge valves are more expensive than syphons and WCs using them would be unlikely to undercut British equivalents.

There certainly seems to be something in the view expressed by importers that to continue to protect the unique position of the UK (and the ex-colonial customers) against an (arguably) superior product could itself damage UK industry, long term. At the very least UK suppliers would miss the opportunity to play, and win, in an increasingly global market economy. The UK industry would become increasingly anachronistic, and the disparity in performance and innovation between the UK and the rest of the world would eventually become obvious. By this time however, it would be much more difficult to remedy the situation and importers may have in any case increased their foothold in the UK. In fact importers and international players spoken to were of the firm belief that the level of imported sanitaryware will continue to increase and at an accelerated rate. Prohibition of the discharge valve merely slows down a process that is, in fact, inevitable. In other words, both cheap and expensive imports are already entering the market and will continue to do so.

In view of this, their argument continues, it would actually make more commercial sense for UK suppliers to stop trying to protect the market by "pulling up the drawbridge," as one described the position. Instead, they should address the issue of how best to secure genuine competitive advantage both at home and abroad. In terms of new suppliers entering the market from abroad, several respondents on the distribution side believed that the larger operations had already entered the UK market (apart from the Japanese). Karat are already supplying to the UK and are one of the largest manufacturers in the world with a capacity of 5 million pieces a year. Their policy is to sell direct to retailers (Graham, Plumb Centers, B&Q) rather than through factors such as, H&S and Broughtons on the basis that retailers are more "professional and sophisticated". Furthermore, it means less profit centre in the chain. Roca, a significant European producer, has also recently geared up to supply the UK market. Smaller or new operations on the other hand, could hardly be seen as a major threat to large UK manufacturers.

4.1. DISCHARGE VALVES

Most of the main UK suppliers currently already supply some of their WC systems with discharge valves (one smaller supplier even making its own), usually for foreign markets; - examples are Caradon, Ideal Standard.

Most UK manufacturers and component suppliers were very opposed to discharge valves in the UK, on the grounds that they believed in the technical superiority of the syphon. This was so especially, as one claimed, with the development of synthetic as opposed to rubber washers for syphons, which "go on forever".
The argument in favour of the syphon is based on:

(a) the fact that a syphon cannot, by definition, leak
(b) the air gap prevents contamination by backflow
(c) their very simplicity which means that there is less to go wrong than with a discharge valve which may have more moving parts
(d) slower action of flush with tail action which clears solids better

The opposition to discharge valves is based on:

(a) early leaking of cheap discharge valve seals
(b) mechanical failure of expensive discharge valves and later leaking
   - given the choice between cheap or high quality discharge valves, the average small plumber will opt for the former, on the grounds of price and simplicity of installation (although they will dislike them if they are too easy to install)
(c) no air lock to prevent contamination by backflow
(d) costs to UK manufacturers and component suppliers of adapting businesses
(e) because of (a) and (b), water wastage
(f) so-called "quality" valves being more expensive than syphons, at least initially
(g) potentially more maintenance costs for landlords, for example housing associations/local authorities, due to the more frequent need for replacement.
(h) lack of manufacturing expertise on the part of UK suppliers: Therefore technically at competitive disadvantage, perhaps even problems from existing products being patented to prevent copying
(i) pan redesign

Suppliers were insistent that, given the opportunity, they would be able to design an effective dual flush system based on a syphon.
The above views, however must be considered in the light of the financial and organisational commitment to the status quo. It is BSRIA's view that arguments are based primarily on the short term costs of changing production and marketing to accommodate new technology (see section 5).

Those in favour of discharge valves see the benefits as being:

(a) water saving - allow reduced flushing volumes - facilitate consumer-friendly dual flushing

(b) push button easier to operate than syphon lever (children, disabled, elderly)

(c) greater flexibility of installation, flushing mechanism can be more remote and at different height relative to operating device

(d) discharge valves can be accommodated in slimmer cisterns contributing to

(i) freeing up extra space (advantage to builders, commercial, landlords, designers)

(ii) aesthetic benefits in the light of current trend towards preference for more streamlined and compact fittings

(e) greater ease and cost savings in replacement (no plumber required, household can do)

(f) increased performance of flush volume - better flow rate, (possibly too good)

(g) consumer attracted to continental systems (novelty factor, seen on holiday)

(h) increases supplier's capacity to offer differentiation

(i) attractive to architects, who like to introduce innovative products

One distributor already selling discharge valves was unaware of problems to date.
5. **IMPACT ON UK SUPPLIERS OF RELAXATION IN REGULATORY REQUIREMENTS**

5.1. **MANUFACTURERS**

Without specifying likely changes to byelaws/regulations and specific timings it was difficult for suppliers to be comprehensive about the impact to their businesses. They admitted that, however, given enough time, many of the following commercial impacts would be lessened.

However manufacturers were universally adamant that the anticipated commercial impact on them would be severe. Specific problems ranged from R&D and retooling costs through to extra marketing, staff training and customer liaison costs. By and large they claimed to see no commercial benefit to be gained whatsoever.

5.1.1. **R&D**

All current R&D plans would be shelved and R&D budgets would be reallocated to gearing up to supply the new types of products competitively, rather than close down factories. Armitage Shanks argued the need to develop their own discharge valve which would incur high R&D costs, since they already make 22 syphon variants in their Ottley factory.

On the other hand, several non-manufacturers reported being "aware" that most manufacturers and component suppliers have already devoted resources to being able to supply any new demand for discharge valves, if they have not already developed one. Others merely believe that it is unlikely that they have done so.

5.1.2. **Retooling/Production**

Manufacturers argue that they would need to supply both new and old types of WC initially, even if the decision was eventually made to concentrate on, say, discharge valve fittings alone. They would continue to produce old-style products to accommodate the replacement market. Any transition period would be prolonged given the life span of the average system. Furthermore, even with new-build contracts, old products would still be required since, with on-going contracts, builders would be unlikely to want to "change horses midstream". New moulds and new cases would be required for a range of new products, whilst keeping the old moulds and cases for older style products. This will also require more factory space for production.

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2 Moulds are made from cases with each mould being used for between 20 and 90 casts
Specific changes would be the repositioning of the apertures in the cistern, in order to allow for a discharge valve with a button (top) rather than a syphon lever (front). Dual flush systems could potentially need yet further cistern plant variations.

Caradon and Armitage claimed that up to a fifth of pan styles may have to be redesigned to accommodate the different flushing action produced by a discharge valve. If the pan styles changed, Caradon argued, seats would also need to be redesigned. But BSRIA’s research sheds doubt on this claim.

If flushing volumes were reduced the majority view of manufacturers is that most of the pans would then require redesign for effective flushing. However, it would seem likely that, given the 12 month development cycle to produce a new bathroom suite, and given enough notice by the DoE, any necessary changes could be incorporated into the usual product development cycle. One respondent admitted that factory costs would be minimal as they would merely replace an existing variant with the new. This respondent also claimed that the main cost would be working out which variants would be compatible with specific new components. For Armitage, with their own fittings factory, there would be retooling costs of changing over to discharge valves. Interestingly, within Armitage there were two different perspectives on whether it would be better to keep two systems running in parallel, or whether to change products overnight. They envisage supplying only a few products with options for both types of flushing device.

Ideal Standard was the only supplier disagreeing with the majority view, by anticipating that permitting discharge valves in the UK would potentially enhance their business, since they already supply to France and Italy. They believed that although imports would rise to an extra 20% of the UK market, they themselves would retain their existing overall market share in this scenario, given that it would only be a matter of days for them to change over. They would buy in discharge valves from their European sister company and would probably aim to switch over completely to discharge valves after the minimum transition period to supply the replacement market. However, they would also continue to supply syphons to the overseas market. On the other hand, Ideal Standard was concerned about difficulties in developing reduced flushing volumes to work efficiently.

However, Armitage explained that they already import European products from their sister company, Ceramica Dolomite, after switching the fittings. That said, style preferences apparently mean that there is little demand for them in the UK due to features such as the continental preference for hidden (therefore not necessarily always ceramic) cisterns.

On the positive side, the style trend in the UK is towards more compact kitchen and bathroom fittings, and discharge valves may facilitate the provision of these features for the UK customer.
In conclusion, it appears that the reduction of flushing volumes would have a much more significant impact on manufacturers than would the permitting of discharge valves. Nearly all pans would then need redesigning, even if only slightly.

5.1.3. Stockholding

Most manufacturers claim that changes in regulatory requirements would require increased stockholding with cost and space implications. It tends to be suppliers rather than distributors who hold most stock, in order that they can best meet their promises of speedy dispatch times.

5.1.4. Marketing/Training

Claimed marketing and training costs to suppliers include:

- Cost of changing display products for trade (Armitage currently have 3000 pieces on display in UK)
- Provision of labels to distributors to apply to existing stock
- Training of existing counter staff about which cistern can be sold with which pan
- Re-education of plumbers (suggestions were made that the government could perhaps provide this)
- Increase in costs of communication with trade over customer complaints due to wrong installation or ineffective flushing
- Redesign of catalogues.

5.1.5. Fittings and components

Armitage said there would be significant costs in converting their own fittings factory to supply discharge valves. However one would presume arrangements could be made with their sister company who currently already supply discharge valves.

5.1.6. Manufacturers' likely response in face of relaxation

As stated, all suppliers claim that they would gear up to supply both discharge valves and syphons. (Other kinds of products were considered less likely to enter the market in significant volumes. They were therefore considered also less likely to impose threats and consequently less likely to require major changes to their operations).
As previously mentioned, one large manufacturer spoke of the volume sensitivity of their ceramics process and the need therefore to maintain volumes, even in the face of lowering prices from competitors. But if they lowered prices themselves, as they claimed would be necessary, they would be faced with a lower return for each unit and therefore reduced profits.

All also claimed that they would be unlikely to be able to increase their export potential as a consequence of relaxation of byelaw requirements (see section 5.1.8)

However, as suggested in a recent trade press article, this over-capacity could potentially be remedied by maintaining the volumes required for efficient kiln operation, and instead exporting more into Continental Europe and the rest of the "non-British" market, if one assumes the barriers to increased export in these areas could be overcome by appropriate business and marketing strategies.

However, one distributor made the point that UK manufacturers are already losing out on price at the very bottom end of the market, to Karat for example, where they have chosen not to compete. It is a problem that already exists and needs tackling.

One distributor made the point that the BBC (British Bathroom Council) would be likely to launch a large scale campaign in support of British products. The same distributor was under the impression that the key suppliers would divide up the market in terms of flushing mechanisms with some going exclusively for one type and some for another.

5.1.7. Overall commercial impact on manufacturers

Overall, the major manufacturers claim they would have to make extra capital investment but would suffer lower profits.

According to the importers with extensive experience of the UK market however, the above arguments do not stand up. Unfortunately, it was not possible to cross-check these views against other importers, since interviews with these were curtailed. Nonetheless these opposing views on the situation do merit serious consideration, despite the fact that it is only the view of one or two, it is an important one or two. It must be borne in mind that, unlike suppliers and components manufacturers, their interest is clearly in changing the status quo, since if barriers come down, they will no longer need to have products adapted via Thomas Dudley and Derwent Macdee.

One of these respondents' response to the issue of multiple production lines and duplication of stock was to point to the British manufacturers' approach to ceramic basins for bathrooms. The (informed) view of one of these respondents was that cistern - adaptation is actually a fairly simple matter, "We're talking about holes in clay", and that suppliers all already make cisterns to take discharge valves for their export markets. His response to the issues of multiple production lines and duplication of stock was to point to the British manufacturer's approach to ceramic bathroom basins. Apparently they choose to operate an enormous degree of
duplication here. For each size and model there are (needlessly) three versions in order to cater for different tap arrangements - one monoblock, two pillar taps or three for a basin mixer with two taps (see brochure clipping in appendix). The Europeans on the other hand solve the problem by adopting a semi-punched taphole system, so that one basin covers all tap requirements. This system, if followed by the UK suppliers could reduce stocks of basins by two thirds almost immediately. Apart from reducing stock held, the semi-punched system also reduces the need for different production lines. One of the two importers suggested this would solve the difficulty of having to supply two versions of a cistern. The appropriate hole is knocked out by the plumber at installation. Holding extra inventory is in fact beneficial to the makers (but not to the merchants) hence their reluctance to cut out existing duplication. This respondent's view, was that, manufacturers' professed arguments against any byelaw relaxation had as their root a simple protectionist stance.

5.1.8. Exports

Shires currently export one third of their products to Africa, Singapore, S. Africa, Hong Kong, the Middle East and Cyprus. They already sell ware with discharge valves into Scandinavia, East Germany, Holland and Denmark. They claim that byelaw relaxation would offer no benefits to them, the main barrier at the moment being the length and difficulty of the approval process in many European countries for each new product. In the case of Denmark, they eventually abandoned the attempt given the length of time it was taking.

Caradon put Dal valves into their export products and are happy with their performance even though they claim they would push hard for the retention of syphons on health and performance grounds. Armitage have a sister company Ceramica Dolomite already operating effectively in Europe and Ideal Standard in Germany have a valve factory.

Some of the distributors with long experience of both the UK and foreign industries believed strongly that UK suppliers would be able to export.

They try to avoid supplying mains pressure flushing units because of the added value provided by the cistern, but they do supply where nominated, sometimes in Asia and the Middle East. Caradon currently export nearly 20% of their production. Half of this is to the Middle East, the rest going to Asia, and the Southern Mediterranean countries, most flushing on 9 litres. Different types of WC supplied include syphonic, wash down and bottom outlet. Their total quantity of sales variants is between 6000 and 7000 currently. They claim that foreign distributors like the syphon since it gives them scope to offer differentiation. Finally, they claim that where they are already supplying foreign markets they would continue to supply existing products here. Syphons allow them to sell at a price premium in these markets where they claim they could not compete with local suppliers of discharge valves.

Caradon claimed that it would not be advantageous to them in terms of exports if discharge valves were permitted in the UK. This was because, in order to supply the
main European countries, they would be starting from scratch in terms of establishing distribution channels. They also claimed that there would be other costs to them which would further reduce the attractiveness of this potential new market. These were different roughing in measures and differences in preferred height of pieces, although importers operating successfully the other way were fairly dismissive of the latter arguments. They said it will take them 18 months to 2 years development time to be able to enter the main European markets. The envisaged strategy in order to do this would be to sell on price alone through the European DIY outlets as a bulk purchase in order to increase volumes initially and establish a foothold and a proper distribution channel. They said they would prefer, however, to enter Europe with the syphon but have not done so to date.

Finally it appears that there is a increasingly European influence on their key markets with Asia and the Middle East demanding top push buttons.

Armitage export only 5% of their production. Due to the fact that their sister company Ceramica Dolomite is the 2nd largest in Italy, Armitage currently concentrates on the former British colonies- the West Indies, Singapore, Hong Kong, and the Middle and Far East. They admitted that byelaw changes may enhance their own export potential but claimed that this would be insignificant compared to other factors holding them back. eg. aesthetics and the bottom outlet in Europe. They claimed that servicing, price and brand are much more important factors.

The BBC have radically reduced all PR marketing expenditure and re-allocated all possible funds to the byelaw issue. The distributors unanimously agreed they would expect any training of their own staff, or re-labelling of their products to be provided and paid for by the suppliers rather than themselves. This explains in many cases their indifference to potential byelaw changes, in comparison with the reactions of the manufacturers. Where negative reaction was offered, especially on technical grounds, it should be borne in mind that this could have been instilled by manufacturers, given the regular, intimate relationship between the two.

5.2. DISTRIBUTORS

There was a much wider range of views held by distributors over likely impacts of any relaxation to water byelaws.

In general distributors were happy with the technical performance of alternative flushing mechanisms, but less so with the concept of reduced flushing volumes. The larger distributors were already experiencing complaints from customers over ineffective flushing on 7½ litres. While they accepted that this was probably just a question of improving the designs, the consensus was that UK manufacturers tend to be rather slow to remedy design problems. Several respondents believed the UK were lagging behind Europe in terms of the choice and sophistication of WC products and regulatory requirements.

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5.2.1. Costs of changes

Most distributors saw byelaw relaxation involving them in minimal costs apart from the increased customer complaints with flushing volume reduction. However, Broughtons and Graham both saw themselves having to bear significant costs, especially if less than two years notice was given of changes. Also, that two years is subsequent to the manufacturers completing any new product designs.

The costs for Graham and Broughtons would be:

- Brochure reprints and new photographs
- Showroom alterations (Grahams only)
- Point of sale material changed
- Price lists reprinted
- Extra stockholding
- Reduced profitability from cheaper products

Training of sales and warehouse staff (even despite their expectation that the supplier will provide this, since there will still be administrative and time costs to them). However given enough notice (two years was the minimum requested) the costs involved would be substantially reduced.

One merchant claimed that his company's product decisions are largely driven by what builders want. In turn builders, he claimed, are driven by price rather than technical factors. Consequently he would tend to switch to any cheaper products that appeared on the scene, wherever they originated. The larger merchants, on the other hand, said that they would prefer to stick with their large UK suppliers, because of the importance of good, long-standing relationships with them, as well as the discounts they can obtain on bulk purchases. However they admitted reluctantly that, should quality products arrive from abroad that were substantially cheaper, they may be "forced" to change or add to their supplier portfolio.

5.2.2. Discharge valves

Most believed that allowing discharge valves would create more opportunities for them, allowing them to offer a wider product range, providing more customers with more choice.

One further implication for distributors was that they may lose out at the top end of the market where retailers market their products from the platform of exclusivity. With low volumes and higher costs as well they see the way forward as cutting out discounts to middlemen.
5.2.3. Dual flushing

Most saw no problem with supplying these kinds of products, although one expressed concern over whether the lower of the two volume flushes would be effective.

5.2.4. Mains pressured systems

Most believed it unlikely that this type of product would enter the market in large quantities. However one smaller merchant believed that cistern-less systems would become increasingly popular, if permitted, in the same way that unvented water heaters and other mains pressured systems have been growing in popularity since they have been allowed into the UK.

5.2.5. Stocks

All distributors said that in theory they would have to increase their stocks initially but given that they only hold 2-3 months worth of stocks, a sufficient notice period would allow them time to adapt gradually. Most reported that they would maintain total amount of stock but gradually switch over so that they supplied some or all types. However, one merchant said they would go over totally to any new cheaper product and forget about the replacement market. In the latter case, the customer may well suffer through buying new products which are incompatible with his existing system.

5.3. COMPONENT SUPPLIERS

Thomas Dudley estimated the actual cost to them of byelaw changes allowing discharge valves at approximately £150,000 to £200,000. They would apparently switch to supply both types of flushing mechanisms. The representative of the company maintained that the demand for the syphon would continue, especially since the syphon would be cheaper than the valves at the expensive end of the market, Dal and Gerberit valves being five to six times the price of the syphon.

Byelaw relaxation would involve them in:

- R&D into discharge valves
- design and redesign "until we get it right"
- testing and retesting
- changes to assembly arrangements
- test rigs, relaying machines, repositioning of machines
- changing product literature.
They claimed they would need 7 or 8 years to develop a product of sufficiently high quality that they could compete on an "even" basis with those foreign suppliers that have been selling them for many years. They currently source their plastics (their largest raw material) from Belgium.

Derwent Macdee, the other main supplier of syphons and cisterns with syphons, assumed they would have to drastically change their outfit in order to supply discharge valves as well as syphons. Having already retooled in the last decade in order to cater for the reduction in flush volumes, the impact on them would be:

- wastage of recent retesting and reinvestment on the basis of their having discharge valves to retool again for

- new investment in retooling for valves (otherwise jobs at risk)

They believe they would be at a serious disadvantage compared with their foreign competitors who have had many years to perfect products, especially since they claim that they would aim to compete at the expensive "quality" end of the valve market.

5.4. LARGE END USERS/SPECIFIERS

Maintenance was the key for end users. Anything that produced more complaints for tenants in terms of more maintenance by the owner would be treated with great caution. For example, with the commercial property developer, the initial experience of the tenant in the building has a significant influence on whether that tenant renews his lease when it expires. This also meant that they were wary of complicated products that offered more scope for mechanical/electrical breakdown. On the other hand, however, any product which can save space and thus maximise lettable or saleable space is warmly welcomed.

Discharge valves were considered more flexible by specifiers in terms of location of operation and allowing smaller cisterns can save a considerable amount of space. Land Securities were keen to comply with BREEAM as a marketing aid and saw discharge valves as a means of doing this.

In terms of switching supplies to foreign importers all end users said they would exercise the utmost care and discretion over selecting any new supplier and would rather stick with the British suppliers, all other things being equal.

That said they were happy in principle with the idea of discharge valves and even mains pressurised toilets, especially in busy commercial locations where dispensing with the cistern speeds up the number of visits per hour possible due to there being no need to fill up a tank between visits.

In commercial locations aesthetics are important since when a potential customer is inspecting the shell and core, toilets are more or less the only fitting installed. More
customers these days are buying or renting just the core and shell rather than with all the fitting out.

5.5. SECOND ROUND EFFECTS

Some manufacturers claimed that because their own output would be reduced if byelaws were relaxed a number of jobs may be lost, particularly in the Stoke area. In addition there would be an impact on their own suppliers, such as china clay producers and energy producers.
6. TIMING

Minimum notice periods sought varied from respondent to respondent, and sector to sector. Fittings and sanitaryware manufacturers sought a lot more time than did distributors. Some ware suppliers sought as much as eight years, whereas distributors claimed appropriate lead times ranged from six months to two years.

However manufacturers also explained that their usual product development cycle is twelve months to two years and one could reasonably make the assumption that two years should be sufficient notice of changes. This is especially so if, as many believe, they would not really be starting from scratch.

The time needed by distributors to adjust to their own operations was often an amount of time following on from the manufacturers lead time rather than in parallel. This was because, for example a distributor could not change over display items in showrooms until the manufacturer had actually developed the new product. Marketing information likewise could not be altered until they knew all the characteristics of any new product.

A total notice period of three to four years would seem a reasonable amount for everyone.

A parallel may be drawn with the introduction of the Boiler Efficiency Directive (92/42/EEC). A proposed directive was issued by the Commission in late 1990 and during 1991 considerable concern was expressed by the industry about the effects of the proposal. It was said that UK-style cast iron boilers would be outlawed and that product costs and prices would rise to the extent that consumers would be deterred from replacing very inefficient old boilers. The Directive was adopted in May 1992 with some amendments, notably including a UK “opt out” allowing less efficient boilers to be sold for installation in living spaces. Boilers must comply with the Directive by the end of the transition period which expires at the end of 1997.

Most British boiler manufacturers are aiming to ensure that by the end of 1995 (2 years ahead of the Boiler Efficiency Directive deadline) all of their boilers will comply with the Directive (as well as others such as Gas Appliances, EMC and Low Voltage). In general they have not found it necessary to take advantage of the “opt out” and boilers will continue to be made in cast iron, without very significant increases in cost.
7. REGULATION/STANDARDS/APPRaisalS/TESTING

There was some unity of belief that a change in legislation was required in order to hold responsible those that sell prohibited products. Respondents claim that in the current situation, where installers are responsible, it is all too easy for laws to be flouted. This would be required to prevent cheap products entering the UK that would leak and waste water. However, CE marking would appear to dispense with this problem eventually.

There was also some agreement that harmonisation of European standards on testing and approvals would be sensible. This would help prevent inferior products entering the market and facilitate export of our products to the continent, where different testing requirements often produce a barrier.
APPENDIX A1

COMPANY BROCHURE EXCERPTS

Twyford with 6 litre cistern with valve fittings
   Ideal Standard multi-hold basin variants
   Armitage Shanks multi-hold basin variants
Galerie washdown W.C. suite, bottom outlet

Applications: Domestic bathrooms; Hotels: Commercial.
Material: Vitreous china to BS 3402.
Colours: W.C. suite in white and full colour range.
Cistern lever in chrome, gold lustre, white and full colour range.

-ordinated items: Galerie range. See page 2.
Fixing: W.C. screwed to floor. Cistern screwed to wall.
Note: The suite is supplied complete with valveless cistern fittings including syphon, 1/2" bottom inlet ballvalve, 1/2" bottom overflow, (or internal overflow), bolts and connecting fittings from cistern to bowl, chrome plated reversible lever. Seat. Ball valves have interchangeable seatings for high or low pressure.
This suite does not comply with U.K. water regulations.

To specify/order:
Please use the eight character reference shown below. The code WH refers to white; for other colours use the codes shown on the fold-out colour section divider.

Suite comprises
W.C. bowl, bottom outlet VI 1145 WH
9 litre cistern with fittings GA 2631 WH
and chrome plated lever ST 1313 WH

Seat and cover
Alternative cistern GA 2021 WH
9 litre cistern with bottom inlet, internal overflow and chrome plated lever

Alternative seat
Seal and cover GA 7860 WH

Extras (specify as separate items):
Cistern lever, gold lustre CF 2018 GL
Cistern lever, white CF 2018 WH

For other cistern lever colours use the codes shown on the fold-out colour section divider.
■ Washdown action with open flushing rim
■ Matching style seat
■ Co-ordinating Galerie range
■ Suite can be fitted clear of back wall
■ Cistern supplied assembled and cartoned

All measurements shown are in millimetres.
Pottery sizes are approximate.

To specify/order:
Please use the eight character reference shown below. The code WH refers to white; for other
colours use the codes shown on the fold-out
colour section divider.

Suite comprises
W.C. bowl, bottom outlet
VI 1145 WH
6 litre cistern with valve
fittings and CP push button
GA 2511 WH
Seat and cover
ST 1313 WH
Alternative seat
GA 7660 WH
Seat and cover

Applications: Domestic bathrooms; Hotels; Commercial.
Material: Various china to BS 3402.
Colours: White and full colour range.
Co-ordinated items: Galerie range. See page 27.
Fixing: W.C. screwed to floor.
Note: The suite is supplied complete with valve
and fittings including outlet valve. Fits bottom
installs: float valve, internal overflow, connecting
fittings from cistern to bowl. Seat.
This suite does not comply with U.K.
water regulations.

Ga are close coupled washdown W.C. suite, bottom outlet

W.C. SUITES 4:14/1
**GALERIE H.O.**

All measurements shown are in millimetres. Pottery sizes are approximate.

**Applications:** Domestic, Hotels, Commercial

**Material:** Vitreous china to BS 3382.

**Colours:** W.C. suite in White and full colour range. Cistern lever in chrome, gold lustre, white and full colour range.

**Co-ordinated items:** Galerie range. See page 27.

**Fixing:** W.C. screw to floor. Cistern screwed to wall.

**Note:** The Galerie W.C. is a development of the Norwood Suite. It is supplied complete with valveless cistern fittings including syphon, 1 durée inlet ball valve, 1 durée overflow pipe and connecting timedron from cistern to bowl, chrome plaited reversable lever. Seat.

Bail valves have interchangeable seatings for high or low pressure. Alternative side inlet side overflow cistern available – see page 4.35

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**To specify or order:**

Please use the eight character reference shown below. This code W.H refers to white; for other colours use the codes shown on the fold-out colour section divider.

**Complete suite as illustrated**

10186 WH 8

**Comprising components:**

- W.C. bowl with horizontal outlet GA 1240 WH
- 7.5 litre cistern with fittings and chrome plated lever GA 2511 WH
- Seat and cover GA 7860 WH

**Extras (specify as separate items):**

- P trap outlet connector, white only WF 1240 WH
- S or turned P trap connector WF 1241 WH
- Cistern lever – gold lustre CF 2018 GL
- Cistern lever – white CF 2018 WH

For other cistern lever colours use the codes shown on the fold-out colour section divider.