

Water Supplies to Washing Machines and Dishwashers

Incorporating the Water Supply Industry's Approved Installation Method

Contents

Section 1 - INTRODUCTION

Section 2 - SCOPE

Section 3 - DEFINITION

Section 4 - NOTIFICATION REQUIREMENTS
AND APPROVED PLUMBERS

Section 5 - WATER EFFICIENCY

Section 6 - EVALUATION OF BACKFLOW RISK

Section 7 - FLUID CATEGORIES AND
EXAMPLES OF USE

Section 8 - ACCEPTABLE APPLIANCES WITHOUT
ADDITIONAL BACKFLOW DEVICES

Section 9 - ADDITIONAL BACKFLOW DEVICES
FOR APPLICATIONS OTHER THAN
FLUID CATEGORY 3

Section 10 - NEW INSTALLATIONS

Section 11 - EXISTING INSTALLATIONS AND
REPLACEMENT OF APPLIANCES

Section 12 - CONNECTING HOSES

Section 13 - NOTE ON WASTEWATER
CONNECTIONS

1. Introduction

The installation and use of washing machines and dishwashers in premises connected to the public water supply are subject to the Water Supply (Water Fittings) Regulations 1999 in England and Wales and the technically identical Byelaws 2000 in Scotland. Reference in this document to Regulations covers the requirements of both sets of legislation. Similar regulations are planned for Northern Ireland.

The Regulations require that the Water Supplier must be notified in advance of most installation work on water systems. Washing machines and dishwashers used for domestic purposes are subject to maximum water consumption requirements. All appliances require adequate backflow protection to prevent contamination of the pipework supplying them. The level of protection required is based upon a risk assessment. Most washing machines and dishwashers designed for domestic purposes incorporate in their design adequate backflow protection for the risk arising from domestic use. Appliances designed for non-domestic environments may not incorporate an adequate level of protection for use in that environment, in which case additional protection must be provided by the method of installation.

This Information and Guidance Note has been produced by the Water Supply Industry in conjunction with The Society of Laundry Engineers and Allied Trades Ltd. (SLEAT). Regulation 4 requires water fittings to be installed, connected, maintained, altered etc. in a workmanlike manner. One means of complying with this requirement is to conform to a method of installation approved by the Water Supplier. This document has been endorsed by the UK Water Suppliers as an approved method for these types of appliances.

2. **Scope**

- 2.1 The risk of contamination by backflow from the use of washing machines and dishwashers in non-domestic premises is regarded as being higher than the risk from their use in domestic premises. However, the Water Supply Industry, which has the duty to enforce the Regulations, recognises that in some non-domestic locations, the backflow risk from these appliances may be no greater than in the domestic environment. This Note will be of use to those who undertake the design and installation of water services in domestic and non-domestic premises and for those who are responsible for the enforcement of the Regulations.

3. **Definitions:**

3.1 **USE OF WASHING MACHINES AND DISHWASHERS FOR DOMESTIC PURPOSES**

In the context of this document,

- the use of washing machines for domestic purposes relates to their use only for cleaning personal or household laundry and similarly -
- the use of dishwashers is for cleaning household culinary items -

both as part of normal household activities.

4. **Notification requirements and Approved Plumbers**

4.1 **NOTIFICATION**

In most cases, before work starts on any proposed installation, the Water Supplier's consent must be obtained by prior notification of the details of the proposed work. Installing or using fittings or appliances without the required consent could result in a criminal prosecution.

Work which must be notified includes the installation of any water fittings, pipework or appliances which will be connected to a water system supplied with water from the public supply. It includes extensions and alterations to the water system in all premises except domestic premises (but see Section 11.3: Modifications.). Ask your Water Supplier for further information regarding notification.

4.2 **APPROVED PLUMBERS**

- (a) Plumbers approved by the Water Supplier or another authorised organisation are permitted to certify that installation work or alterations they have carried out comply with the Regulations. On completion of the work the Approved Plumber must provide a compliance certificate to the person who asked for the work to be carried out and, if the work is notifiable, send a copy to the Water Supplier. If breaches of Regulations are then found in the certified work, the owner or occupier is exempt from possible prosecution. Names of Approved Plumbers are available from the Water Suppliers.
- (b) Under the Regulations an Approved Plumber does not have to give prior notification to the Water Supplier

before starting certain work, including the installation of mechanical backflow prevention devices for Fluid Category 4 or 5 risks. However, it is a Water Supply Industry requirement that prior notice shall be given for the installation of all Type BA Reduced Pressure Zone (RPZ) Valves (see Section 9). Further information is given in the Water Supply Industry's code of practice for the installation of RPZ valves (WRAS Information and Guidance Note No. 9-03-02: Type BA – Verifiable Backflow Preventer with Reduced Pressure Zone (RPZ Valve) Requirements for Installation, On-Site Testing and Maintenance).

5. **Water Efficiency**

- 5.1 The Regulations require that appliances used for domestic purposes achieve the following water consumption performance per cycle:

- (a) Horizontal axis washing machine: 27 litres per kg washload (standard 60°C cotton cycle).
- (b) Washer-driers: 48 litres per kg washload (standard 60°C cotton cycle).
- (c) Dishwashers: 4.5 litres per place setting.

6. **Evaluation of Backflow Risk**

- 6.1 When evaluating the installation requirements for a washing machine or dishwasher in premises other than a domestic dwelling, the following factors need to be considered:

- the type of use which is reasonably likely to be made of the machine and the corresponding risk of contamination;
- the fluid (risk) category;
- the type of machine (including any built-in backflow protection) and any additional backflow protection requirements.

- 6.2 A risk assessment should be carried out by or on behalf of the installer, owner or occupier to decide on the fluid category and backflow protection requirements, but the Water Supplier has the right to make the final decision.

7. **Fluid categories and examples of use**

- 7.1 Washing machines and dishwashers being used in the following environments are deemed to be in the given fluid categories:

- (a) **FLUID CATEGORY 3:** All residential accommodation where the machines will normally be used only for personal or household laundry or culinary items. This includes residential accommodation in blocks of flats, schools, student accommodation, universities, sheltered housing, holiday or caravan parks and barracks. Also use for domestic purposes in other premises (excluding any mentioned in (b) or (c) below) which meets the definition in Section 3.1 e.g. for offices, staff rooms, hairdressing salons.

- (b) **FLUID CATEGORY 4:** Hotels, restaurants, public houses, canteens and other premises where the items to be washed are for catering use, but excluding catering for healthcare premises (see below); high street laundrettes used by the public at large; commercial laundry businesses where no medical or other high risk items are likely to be processed.
- (c) **FLUID CATEGORY 5:** All residential or day care establishments where health care is provided for the residents or visitors; laboratories, mortuaries and premises where laundry or equipment might be contaminated with toxic chemicals or with animal wastes or body fluids by other than normal domestic activities, e.g. slaughter houses, meat processing or butchery premises and veterinary practices.
- 7.2 The above definitions apply whether the machines are manually or coin operated. All applications should be assessed for any higher risks beyond the 'norm' and where these exist the relevant risk category should be applied regardless of the above definitions.

8. Acceptable appliances without additional backflow devices

- 8.1 **FLUID CATEGORY 3 APPLICATIONS.**
The following machines will be acceptable for direct connection to the water supply pipe (hot or cold) without additional backflow protection:
- (a) Machines listed in the WRAS Water Fittings and Materials Directory*, under Section 2380 (Washing machines) and Section 2400 (Dishwashers) as these incorporate backflow prevention devices to fluid category 3, provided any relevant Installation Requirements and Notes (IRNs) are complied with. Machines approved for fluid category 4 or 5 applications are also acceptable for use with fluid category 3 (see Section 8.2 below).
- (b) Machines that comply with EN 50084 or BS 6614, which comply with the relevant parts of the standards of CENELEC HD274.
- 8.2 **FLUID CATEGORY 4 OR 5 APPLICATIONS.**
Machines listed in the WRAS Water Fittings and Materials Directory under Section 2370 (washing machines) and Section 2390 (dishwashers) incorporate an appropriate "Family A" device giving fluid category 5 protection, provided any relevant Installation Requirements and Notes (IRNs) are complied with.

**The Water Fittings and Materials Directory, published by the Water Regulations Advisory Scheme is available from the address at the end of this publication.*

9. Additional backflow devices for applications other than Fluid Category 3

- 9.1 Where they are required, suitable additional devices for providing Fluid Category 4 protection are listed in the Regulations and include the Type AF (air gap with circular overflow) and the Type BA (verifiable backflow preventer with reduced pressure zone, RPZ valve). Fluid Category 5 devices require the water supply to be fed via a Type AA, AB or AD air gap.

10. New Installations

- 10.1 The machine must be installed to comply with the Regulators' Specification for backflow prevention arrangements and devices (see page 6.10 of the WRAS Water Regulations Guide) following the procedures described above to provide backflow prevention rated to protect to at least the required fluid category.
- 10.2 Where the machine does not incorporate adequate built-in protection, it must be provided as part of the installation.

11. Existing installations and replacement of appliances

11.1 COMPLIANCE OF EXISTING INSTALLATIONS

Existing systems for water supply vary considerably. Therefore it is important to establish the layout of any existing system within the premises.

Where installations have been identified as not complying with the previous Water Supply Byelaws or the Water Fittings Regulations (depending upon which was in force at the time of installation), then the necessary remedial work must be completed in accordance with the requirements detailed in this document.

11.2 REPLACEMENT OF EXISTING APPLIANCES

An appliance which was legally installed under byelaws may be replaced with a similar appliance (i.e. one using the same principle of operation for the same purpose as the original appliance and complying with the Requirements for Water Fittings (Regulation/Byelaw 4)), provided the same level of backflow protection is maintained as for the original appliance.

11.3 MODIFICATION OF PIPEWORK OR FITTINGS

- (a) The replacement of an existing appliance may require minor modification of the pipework or fittings supplying water to it, for example to accommodate a water inlet located in a different position on the new appliance. The Regulations require prior notification and the Water Supplier's consent for any extensions or alterations to plumbing systems in non-domestic premises (see Section 4).
- (b) The Water Supply Industry considers that for the purpose of replacing an existing appliance with a similar one, work which is within the following Scope of Modification will not require prior notification and consent, providing the installation complies with the Regulations, including the requirement for it to be carried out in a workman-like manner.

(c) SCOPE OF MODIFICATION

- (i) In the course of the connection of a replacement appliance to the water system, where modification to the water system is necessary to comply with the requirements of the appliance and the Water Fittings Regulations and

- (ii) The modification is confined to extending, repositioning or shortening a pipe run to a maximum alteration of 3 metres and where the pipe size is not altered.
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12. Connecting hoses

Flexible hoses connecting appliances to the water supply system are a frequent cause of unacceptable taste in drinking water, due to water in the hose becoming contaminated by organic chemicals leached from it. Water can move from the hose into the pipe supplying the drinking water tap as a result of pressure fluctuations or diffusion. Connection hoses approved by WRAS from October 2001 should not give rise to this problem. If using hoses other than these, then both hot and cold water pipes must be protected with an appropriate "Family E" device (single check valve) at the point of connection of the hose to the supplying pipework.

13. Wastewater connections

NOTE

Although not a Water Fittings Regulations matter, please note the following warning:

Where separate systems exist for drainage of foul water and surface water, it is important that drainage from a clothes or dish washing machine is connected only to the foul drainage system. Failure to ensure this can cause serious pollution of a watercourse and may result in prosecution, by the sewerage undertaker or by the Environment Agency or the Scottish Environmental Protection Agency.

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