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|---------------------------------------|----------|----------|----------|----------|-----------|
| Test Code Sheet Number | 1 | 5 | 1 | 2 | 11 |
|---------------------------------------|----------|----------|----------|----------|-----------|

WRAS TEST & ACCEPTANCE CRITERIA

Issue No: 1
Date of issue: November 2000

Sheet 1 of 3

TEST CODE SHEET

1. TYPE OF TEST(S)

Solids discharge and after flush volume for maximum flush.

2. WATER REGULATIONS REQUIREMENTS FOR FITTINGSSchedule 2

25 (1) Subject to the following provisions of this paragraph

(a) every water closet pan shall be supplied with water from a flushing cistern, pressure flushing cistern or pressure flushing valve, and shall be so made and installed that after normal use its contents can be cleared effectively by a single flush, or, where the installation is designed to receive flushes of different volumes, by the largest those flushes;

(b) no pressure flushing valve shall be installed

(i) in a house, or

(ii) in any building not being a house where a minimum flow rate of 1.2 litres per second cannot be achieved at the appliance.

(c) where a pressure flushing valve is connected to a supply pipe or distributing pipe, the flushing arrangement shall incorporate a backflow prevention device consisting of a permanently vented pipe interrupter located not less than 300mm above the spillover level of the WC pan or urinal;

(d) no flushing device installed for use with a WC pan shall give a single flush exceeding 6 litres;

(e) no flushing device designed to give flushes of different volumes shall have a lesser flush exceeding two-thirds of the largest flush volume;

(f) every flushing cistern, other than a pressure flushing cistern, shall be clearly marked internally with an indelible line to show the intended volume of flush, together with an indication of that volume.

(g) a flushing cistern designed to give flushes of different volumes

(i) shall have a readily discernible method of actuating the flush of different volumes; and

(ii) shall have instructions, clearly and permanently marked on the cistern or displayed nearby, for operating it to obtain the different volumes of flush

(h) every flushing cistern, not being a pressure flushing cistern or a urinal cistern, shall be fitted with a warning pipe or with a no less effective device;

(i) every urinal that is cleared by water after use shall be supplied with water from a flushing device which

(ii) in the case of a flushing cistern, is filled at a rate suitable for the installation;

(iii) in all cases, is designed or adapted to supply no more water than is necessary for effective flow over the internal surface of the urinal and for replacement of the fluid in the trap; and

(j) except in the case of a urinal which is flushed manually, or which is flushed automatically by electronic means after use, every pipe which supplies water to a flushing cistern or trough used for flushing a urinal shall be fitted with an isolating valve controlled by a time switch and a lockable isolating valve, or with some other equally effective automatic device for regulating the periods during which the cistern may fill.

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|---------------------------------------|----------|----------|----------|----------|-----------|
| Test Code Sheet Number | 1 | 5 | 1 | 2 | 11 |
|---------------------------------------|----------|----------|----------|----------|-----------|

Issue No: 1
Date of issue: November 2000

Sheet 2 of 3

(2) Every water closet, and every flushing device designed for use with a water closet, shall comply with a specification approved by the regulator for the purposes of this schedule.

(3) The requirements of the sub-paragraphs (1) and (2) do not apply where faeces or urine are disposed of through an appliance that does not solely use fluid to remove the contents.

(4) The requirement in sub-paragraph (1) (i) shall be deemed to satisfied

(a) in the case of an automatically appeared flushing cistern servicing urinals which is filled with water at a rate not exceeding

(i) 10 litres per hour for a cistern serving a single urinal;

(ii) 7.5 litres per hour per urinal bowl or stall, or as the case may be, for each 700mm width of urinal slab, for a cistern serving two or more urinals;

(b) in the case of a manually or automatically operated pressure flushing valve used for a flushing urinals which delivers not more than 1.5 litres per bowl or position each time the device is operated.

(5) Until 1 January 2001 paragraphs (1) (a) and (d) shall have effect as if they provided as follows

(a) every water closet pan shall be supplied with water from a flushing cistern or trough of the valveless type which incorporates siphonic apparatus;

(b) no flushing device installed for use with a WC pan shall give a single flush exceeding 7.5 litres.

(6) Notwithstanding sub-paragraph 1(d), a flushing cistern installed before 1st July 1999 may be replaced by a cistern which delivers a similar volume and which may be either single flush or dual flush; but a single flush cistern may not be so replaced by a double flush cistern.

(7) In this paragraph

‘PRESSURE FLUSHING CISTERN’ means a WC Flushing device that utilises the pressure of water within the cistern supply pipe to compress air and increase the pressure of water available for flushing a WC pan.

‘PRESSURE FLUSHING VALVE’ means a self closing valve supplied with water directly from a supply pipe or a distributing pipe which when activated will discharge a pre determined flush volume.’

TRAP’ means a pipe fitting or part of a sanitary appliance, that retains liquid to prevent the passage of foul air; and

‘WARNING PIPE’ means an overflow pipe whose outlet is located in a position where the discharge of water can be readily seen.

| | | | | | |
|---------------------------------------|----------|----------|----------|----------|-----------|
| Test Code Sheet Number | 1 | 5 | 1 | 2 | 11 |
|---------------------------------------|----------|----------|----------|----------|-----------|

Issue No: 1
Date of issue: November 2000

Sheet 3 of 3

3. BRITISH STANDARDS OR WATER SPECIFICATION, DEEMED TO SATISFY WATER REGULATIONS REQUIREMENTS

3.1 Fittings with 'kitemarks' which are deemed to satisfy the requirements of regulations are listed in the directory.

4. TEST PROCEDURE

Note: Unless stated otherwise the temperature of the test fluid shall be $20 \pm 10^{\circ}\text{C}$.

4.1 Tests are applicable to the following fittings:

ALL WC CISTERNS AND PANS SUPPLIED AS SUITES, which require to be tested to the regulators specification.

(A) ALL WC CISTERNS AND PANS SUPPLIED AS SUITES, which require to be tested to the regulators specification.

4.2 Apparatus

- a) WC pan with associated flushing cistern and/or flushing device, or a close coupled/one-piece suite, installed in accordance with the manufacturer's instructions on a firm, flat horizontal/vertical surface as appropriate. The flushing device shall satisfy the requirements of this specification.
- b) four test specimens prepared in accordance with Annex F of BS EN 997;
- c) measuring vessel;
- d) electronic test rig with sensor for measuring the volume of water discharged after the last test specimen (b) has been discharged from the WC (a suitable test rig is described in AS 1172.1 - 1993);
- e) container capable of collecting test specimens and discharge volume;
- f) timing device having an accuracy of 0.5 seconds;
- g) directing device (see figure 1);
- h) water supply.

4.3 Procedure

Set the dual-flush controller or setting if provided to the *full-flush volume* in accordance with the manufacturer's instructions. Fill any flushing cistern to the marked water line. Shut off the water supply, unless essential for the normal operation of the flushing device.

Note. Where a water supply is essential for the normal operation of the device, maintain the supply at a hydraulic pressure of 1.5 ± 0.1 bar or the minimum required to operate the device, whichever is the greater.

Operate the flushing device and measure the total flush volume. Record the volume. Using the directing device in Figure 1 of AS 1172.1, drop the four test specimens into the WC pan. Operate the flushing device to evacuate the test specimens and record the trailing volume. Repeat the procedure a further 5 or 9 times as appropriate (see acceptance criteria).

4.4 Expression of results

Record compliance, or any failure to comply with the requirements.

5. ACCEPTANCE CRITERIA

When tested as described above, for the first six flush cycles, or for a minimum of eight out of ten flush cycles, each of the four test specimens shall be completely evacuated from the WC bowl and pan's outlet. The recorded after flush volume in each flush cycle shall be no less than 40% of the full flush volume.