Method and apparatus for use in the installation of sanitary fittings

A gasket for use in installing a sanitary fitting to a wall comprises a gasket element which has an outer edge that is pre-shaped to correspond to at least a perimeter portion of a rear face of the sanitary fitting that faces the wall when the fitting is installed, such that in use the gasket prevents water from running down between the sanitary fitting and the wall. A method of installing the sanitary fitting comprises locating the gasket between the fitting and the wall prior to final fixing of the fitting, the gasket being so arranged as to prevent or at least reduce the amount of water running down from above the fitting into a space between the rear of the fitting and the wall. A sanitary fitting may be provided for use with the gasket which has a rear face which in use faces a wall, an upper face which meets the rear face at an interface, and in which the rear face includes an elongate cut-out within which a rope type gasket can be received, the cut-out extending over at least a peripheral portion of the rear face that corresponds to the interface.
Description

[0001] This invention relates to improvements in sanitary fittings, and in particular to a method of finishing a connection between a fitting and a wall.

[0002] It is known to provide sanitary fittings which are installed flush with a wall. For instance, a toilet (WC) pan may be supported on the floor as a back to the wall type fitting or may be wall hung. It is also common for a sink to be installed with its back to a wall, either supported above the floor by a pedestal or wall hung. Connections to water supplies and draining as required may be taken through the wall or down to the floor as demanded by the installation. Such fittings are well known in both domestic and commercial settings. Other sanitaryware fittings to which the present invention applies are bidets, urinals and vanity units, all of which having a rear face that conventionally abuts a wall against which they are fitted.

[0003] It is also known that liquid, such as water from a tap associated with a sink, or perhaps cleaning solutions used to clean the fitting in the case of a toilet, or urine in the case of a toilet or urinal, may accidentally splash, or be deliberately applied to, the wall above and to the rear of the fitting. This liquid, if unchecked, could then run down the wall into the gap behind the fitting and wall. Over time this may encourage mould growth on the wall or could cause damage to the wall. In the case of urine bacteria in the urine may cause the region around the fitting to smell and is also unhygienic. To protect the wall it may be given a waterproof coating, such as a layer of tiles forming a splash-back. This allows the wall easily to be cleaned. However, it may still be possible for water or urine to run down the tiles behind the fitting.

[0004] The current solution to the problem of liquid running down the wall behind a fitting is to run a bead of waterproof sealant around the joint between the fitting and the wall. This is applied after the fitting has been fixed in place, typically using a sealant gun to extrude sealant from a suitable container. Whilst this is effective in preventing water reaching the rear of the fitting it can be difficult to achieve a neat finish to the bead. Over time the bead can become mouldy or may harbour bacteria and become unsightly. It is also very hard to remove the bead should a fault develop with the fitting or its plumbing.

[0005] According to a first aspect the invention provides a gasket for use in installing a sanitary fitting to a wall comprising a gasket element which has an outer edge that is pre-shaped to correspond to at least a perimeter portion of a rear face of the sanitary fitting that faces the wall when the fitting is installed, such that in use the gasket prevents water from running down between the sanitary fitting and the wall.

[0006] The gasket of the invention can be used to form a seal between a sanitaryware item and a wall against which it is mounted, and because it is shaped to complement the rear face of the fitting it can stop water getting behind it. Because it may be preshaped to match the shape of the fitting it is to be used with it can form a neat seal around the interface between the fitting and the wall. This gasket removes the need to provide a bead of sealant to keep out the water, and provides a neat and consistent finish. It also has the advantage, in some embodiments, that the fitting can be repeatedly removed and refitted with the same gasket.

[0007] The gasket may comprise a sheet of resilient material, perhaps a synthetic material such as a silicon rubber material or similar. The resilience allows the gasket to yield slightly as it is compressed so as to conform to the wall and sanitaryware fitting to make a watertight seal.

[0008] The gasket may include at least one cut-out through which a pipe can be passed from the wall to the fitting.

[0009] The gasket may include an area of adhesive on at least one, or optionally both, sides, enabling the gasket to be stuck to the wall and/or fitting during installation of the fitting to the wall. This may comprise a layer of adhesive that covers substantially the whole of at least one side, covered perhaps by an easily removable protective covering prior to use.

[0010] The gasket may be preshaped to match the top part of the rear face so as to align with the interface between the top of the fitting and the rear face. It may be preshaped to match the side edges of the rear face, and may in fact extend completely around all of the perimeter of the rear face which would otherwise abut the wall.

[0011] According to a second aspect the invention provides in combination a sanitary fitting having a rear face which faces towards a wall and an upper surface that joins the rear face at an interface, and a gasket which is located between the rear face and the wall and which has an upper edge that extends at or adjacent the interface so as to provide a waterproof seal that substantially prevents or at least reduces the amount of water dripping down the wall and down between the fitting and the wall.

[0012] The fitting may be secured to the wall such that the gasket is compressed. It may be secured to the wall by one or more fixings, such as bolts, which are placed in tension.

[0013] The gasket may be shaped and sized such that the outer periphery of the gasket lies exactly, or generally, in register with the interface of the sanitaryware fitting, or slightly below it. It may be, for instance, up to 10mm or less below it. It may be preshaped to match the perimeter of at least a top part of the rear face of a fitting. A range of different gaskets may therefore be provided to suit a range of different fittings.

[0014] The gasket may include an opening through which a pipe passes from the fitting through the wall.

[0015] The gasket includes at least one opening through which a fastener used to compress the fitting onto the gasket passes through to the wall.

[0016] The gasket may be secured to the rear of the fitting with an adhesive.

[0017] The gasket may comprise a sheet of material which engages a planar rear face of the item. It may be
a solid or foamed item. Alternatively it may comprise a rope like gasket which may be received at least partially in a groove provided on the rear face of the item, or in the wall behind the item, or both. In a further alternative the gasket may comprise a flexible rope type gasket which may be secured in position around at least part of the perimeter of a sanitary unit and wall interface by adhesive. The gasket may be hollow and may have a substantially D shaped profile. The gasket may be secured to the sanitary unit by adhesive along one side of the D such that the flat of the D bridges the gap between the sanitary unit and the wall so that only the flat of the D is visible between the sanitary unit and the wall, this forms a neat finish. The gasket profile may be shaped to complement the sanitary unit or the wall which it adjoins.

[0018] The fitting may comprise a back to the wall WC pan or a wall hung WC, or a sink/basin, or a urinal, or a bidet, or other sanitaryware fitting. The fitting may be floor standing, such as a back to the wall WC pan, or may be wall hung or floor standing on a separate pedestal.

[0019] The sanitary fitting may have a rear face which in use faces the wall, an upper face which meets the rear face at an interface, and in which the rear face includes an elongate cut-out within which the gasket can be received, the cut-out extending over at least a peripheral portion of the rear face that corresponds to the interface. The rear face of the fitting may typically be generally planar along at least its upper peripheral region and part of the sides extending down from that so as to sit flush with a flat wall surface to which it is mounted. The cut-out may extend within this flat portion.

[0020] The cut-out may be a groove having opposing sidewalls and a base defining a space. The groove may extend along an upper peripheral portion of the rear face at a distance of less than 5mm or less than 10mm from the interface, or less than 20mm. It may extend parallel to the interface. It may have a depth and width of between 5mm and 30mm. It may extend down a peripheral portion of the left and right edges of the rear face. The groove may be continuous at least along its upper part that corresponds to the interface.

[0021] The cut-out may be a groove having opposing sidewalls and a base defining a space. The groove may extend along an upper peripheral portion of the rear face at a distance of less than 5mm or less than 10mm from the interface, or less than 20mm. It may extend parallel to the interface. It may have a depth and width of between 5mm and 30mm. It may extend down a peripheral portion of the left and right edges of the rear face. The groove may be continuous at least along its upper part that corresponds to the interface.

[0022] Alternatively the cut-out may comprise a notch that cuts into the region where the top face of the fitting joins the rear face, such that when the fitting is secured to a wall the gasket sits in the space formed by this notch.

[0023] Alternatively a third aspect the invention provides a method of installing a sanitary fitting comprising locating a gasket between the fitting and the wall prior to final fixing of the fitting, the gasket being so arranged as to prevent or at least reduce the amount of water running down from above the fitting into a space between the rear of the fitting and the wall.

[0024] The gasket may be adhered to the fitting prior to offering the fitting up to the wall. Or it may be adhered to the wall before offering the fitting up to the gasket.

[0025] The gasket may initially be oversized such that it extends beyond the upper edge, or interface, of the rear face of the fitting, and is trimmed to match the upper edge after the fitting has been secured to the wall.

[0026] According to a fourth aspect the invention provides a sanitary fitting having a rear face which in use faces a wall, an upper face which meets the rear face at an interface, and in which the rear face includes an elongate cut-out within which a rope type gasket can be received, the cut-out extending over at least a peripheral portion of the rear face that corresponds to the interface.

[0027] The cut-out in the edge of the rear face having one wall and a base so that the top surface is stepped down before joining the rear face to form a region within which a gasket can be received. This notch may be shaped to receive a rope gasket of a complimentary cross section.

[0028] The cut-out may be a groove having opposing sidewalls and a base defining a space. The groove may extend along an upper peripheral portion of the rear face at a distance of less than 5mm or less than 10mm from the interface, or less than 20mm. It may extend parallel to the interface. It may have a depth and width of between 5mm and 30mm. It may extend down a peripheral portion of the left and right edges of the rear face. The groove may be continuous at least along its upper part that corresponds to the interface.

[0029] Alternatively the cut-out may comprise a notch in the edge of the rear face having one wall and a base so that the top surface is stepped down before joining the rear face to form a region within which a gasket can be received. This notch may be shaped to receive a rope gasket of a complimentary cross section.

[0030] In a further alternative the cut-out may be a flat region of the interface which is marked to show the position in which a rope type gasket should be adhered around the periphery of the interface.

[0031] There will now be described, by way of example only, four embodiments of the present invention with reference to and as illustrated in the accompanying drawings of which:

Figure 1(a) is a view in plan of a wc pan secured to a wall through a gasket in accordance with a first aspect of the invention;

Figure 1(b) is front elevation view of the arrangement of Figure 1(a);

Figure 2 is an alternative view of part of the arrangement of Figure 1(a) looking down onto part of the top of the pan and the gasket.

Figure 3 is a plan view of the gasket only showing the location of a cut-out in its centre;

Figure 4 is a view of a part of an alternative arrangement in which a gasket is received in a groove in the rear of an sanitaryware item;

Figure 5 is a view of a part of a still further alternative arrangement in which a gasket is received in a
groove in the wall located behind the rear of a sanitaryware item;

Figure 6 is a plan view of one configuration for a gasket as used in the arrangements of Figures 4 and 5;

Figure 7 is a view similar to Figures 4 and 5 of an alternative arrangement in which a gasket is receiv- ed in a notch that cuts into the top surface and rear face of the fitting;

Figure 8 shows a cross section through an alternative embodiment of a gasket according to a further aspect of the invention;

Figure 9 shows the gasket of Figure 8, installed; and

Figure 10 shows a similar view to that of Figure 8, in which the gasket has been compress during installation.

[0032] Figures 1(a) and 1(b) show in plan and in front elevation respectively a typical item of sanitaryware which can form part of the apparatus 10 of the first aspect of the invention, and which can be installed using the method of the second aspect. It comprises a WC pan, which is floor standing and is of the back-to-the-wall type in that is does not include an integral cistern. Instead it is secured so that a rear face 2 of the pan is lined up against a wall 3 and is connected to a cistern (not shown) that is typically hidden behind the wall through a pipe (also not shown). A soil pipe connected to the pan also passes out through an opening in the wall. The pan 1 is typically fixed to the floor 4, or the wall 3, or both. As shown it is only fixed to the wall 3. The pan is covered by a hinged lid 6.

[0033] As shown in Figure 1(a) the pan 1 is secured to the wall 3 by two fixing anchors 5,6. Between the rear face 2 of the pan 1 and the wall 3 is a gasket 7. This can also be seen in Figure 3 which is an enlarged view looking down on the pan 1 in the area where it meets the wall. This gasket 7 is of compressible material, for instance silicon rubber, and is sufficiently thick and resilient to accommodate any slight non-conformity between the back face 2 of the pan 1 around its upper perimeter and the corresponding section of wall.

[0034] The gasket 7 as shown in Figure 1(a) is shown in plan in Figure 2 of the drawings. It comprises a sheet of material that is pre-shaped to match the pan, by which we mean that it has an outer perimeter which complements the interface the top of the pan and its rear face 1b, and optionally also the interface between the left and right sides and the rear face 1b, so that when installed an edge of the gasket 7 is aligned with the upper edge of the rear face of the pan where it meets the top face 1a of the pan. It also includes a central cut out 7a through which the connections to the cistern and soil stack can pass.

[0035] To install the pan 1 and gasket 7, the gasket 7 is first stuck to the rear face of the pan using an adhesive. In the example an adhesive layer 8 is provided on the gasket which sticks it to the pan. If the gasket is not precut to match the perimeter of the pan, or there are any parts which do not line up, they can be trimmed at this time with a sharp knife.

[0036] Once the gasket is stuck to the pan 2, the pan and gasket are lined up with the wall and the anchors are tightened to cause the pan to compress the gasket. In doing so it will squash upward slightly to form a neat seal at the interface between the pan rear face, the wall and the top face of the pan. This seal prevents water running down the wall 3 from an area above the pan and entering the space between the pan and the wall.

[0037] Figures 4 and 5 show two modified arrangements. Figure 4 shows a part of a pan 100 in side elevation together with the corresponding part of the wall 200 and a cross section through the gasket 70. Figure 5 is a corresponding view of an alternative pan design 300 abutting a wall 400 with a cross section through a gasket 80. In each case, a gasket 70,80 in the form of a compressible cord is provided which is located within a groove 71 in the rear of the pan (as shown in figure 4) or a groove 81 in the wall (as shown in figure 5). In each case the gasket 70,80 can be retained with a layer of adhesive 72,82 in the groove if desired. The groove extends along a perimeter region of the rear surface of the pan, or corresponding wall section. The groove may also extend down a side portion of the pan as well. This can be seen in Figure 6 which is a cross-sectional view of the installed pan taken in elevation with the cross section passing through the gasket rope.

[0038] A still further alternative is shown in Figure 7. In this case, a sanitary fitting 500 (a WC pan) has a notch 510 is cut into the region where the top surface 520 of the fitting joins the rear surface 530, so that the top surface is stepped down before joining the rear face. A gasket 90 sits in compression in this notch against a wall 600.

[0039] Another embodiment of the invention is shown in Figures 8, 9 and 10. In this example the gasket 850 is a long strip of silicone rubber with a D shaped hollow cross section. On one side of the D there is an adhesive strip 81 which serves to attach the gasket 85 to the back of a sanitary unit 82 and holds it in place. The gasket 85 is fitted to the perimeter of the sanitary unit surface which is to be sealed against a wall. The gasket can be supplied on a reel from which lengths can be cut according to the length of the perimeter to be sealed. The adhesive can be covered by a rip-off paper backing strip which can be removed just before fitting to the sanitary unit. Alternatively adhesive may be applied to any chosen side of the gasket before fitting or to the surface of the sanitaryware item. The gasket should be fitted to a flat surface since the adhesive removes the need for a retaining groove to be made in the sanitary unit. In this example, the flat of the D is positioned to bridge the gap between the sanitary
unit and the wall, and sits flush with the perimeter of the surface of the sanitary unit which is positioned against the wall, forming a neat finish. The sanitary unit 82 can then be fastened to the wall 83 which compresses the gasket as shown in Figure 10, forming a water tight seal around the perimeter of the sanitary unit 82 and wall 83 interface.

[0040] It is of course to be understood that the described embodiments are only given to aid in understanding of the invention and that many variations are possible, the scope of protection being defined by the claims. In particular the invention may be extended to other items of sanitaryware such as sinks and bidets where the problem of preventing water ingress between the item and the wall exists.

Claims

1. A gasket (7,70,80,85) for use in installing a sanitary fitting (1,100,400,500) to a wall comprising a gasket element which has an outer edge that is pre-shaped to correspond to at least a perimeter portion of a rear face of the sanitary fitting (1,100,400,500) that faces the wall when the fitting is installed, such that in use the gasket (7,70,80) prevents water from running down between the sanitary fitting and the wall.

2. A gasket (7) according to claim 1 which comprises a sheet of resilient material such as a silicon rubber material or similar.

3. A gasket (7) according to claim 1 or claim 2 which includes at least one cut-out through which a pipe can be passed from the wall to the fitting.

4. A gasket (7) according to any preceding claim which includes an area of adhesive on at least one, and preferably both, sides, enabling the gasket to be stuck to the wall and/or fitting during installation of the fitting to the wall.

5. Apparatus comprising in combination a sanitary fitting (1,100,400,500) having a rear face which faces towards a wall and an upper surface that joins the rear face at an interface, and a gasket (7,70,80,85) which is located between the rear face and the wall and which has an upper edge that extends at or adjacent the interface so as to provide a waterproof seal that substantially prevents or at least reduces the amount of water dripping down the wall and down between the fitting and the wall.

6. Apparatus according to claim 5 in which the fitting (1,100,400,500) is secured to the wall such that the gasket (7,70,80) is compressed.

7. Apparatus according to claim 5 or claim 6 in which the gasket (7,70,80,85) is shaped and sized such that the outer periphery of the gasket lies generally in register with the interface of the sanitaryware fitting, or slightly below it.

8. Apparatus according to any one of claims 5 to 7 in which the gasket (7,70,80,85) includes an opening through which a pipe passes from the fitting through the wall, and alternatively or additionally includes at least one opening through which a fastener used to compress the fitting onto the gasket passes through to the wall.

9. Apparatus according to any one of claims 5 to 8 in which the gasket (7,70,80,85) is secured to the rear of the fitting with an adhesive.

10. Apparatus according to any one of claims 5 to 9 in which the gasket (7) comprises a sheet of material which engages a planar rear face of the item or comprises a rope (70,80,85) which is received at least partially in a groove (71,81) provided on the rear face of the item (1), or in the wall behind the item, or both.

11. Apparatus according to any one of claims 5 to 10 in which the fitting comprise a toilet (WC) pan, or a sink.

12. A method of installing a sanitary fitting comprising locating a gasket (7,70,80,85) between the fitting and the wall prior to final fixing of the fitting, the gasket being so arranged as to prevent or at least reduce the amount of water running down from above the fitting into a space between the rear of the fitting and the wall.

13. A method according to claim 12 comprising adhering the gasket (7,70,80,85) to the fitting prior to offering the fitting up to the wall.

14. A method according to claim 11 or 12 further comprising providing a gasket (7) which is initially oversized such that it extends beyond the upper edge, or interface, of the rear face of the fitting, and subsequently trimming the gasket to match the upper edge after the fitting has been secured to the wall.

15. A sanitary fitting (100,400,500) having a rear face which in use faces a wall, an upper face which meets the rear face at an interface, and in which the rear face includes an elongate cut-out within which a rope type gasket (70,80) can be received, the cut-out extending over at least a peripheral portion of the rear face that corresponds to the interface.

16. A sanitary fitting according to claim 15 in which the cut-out comprises a groove (71,81) having opposing sidewalls and a base defining a space for a gasket, or in which the cut-out comprises a notch (510) cut
into the region where the top surface of the sanitary fitting joins the rear face so that the top face is stepped down to form a space for a gasket.

17. A sanitary fitting according to claim 15 or 16 in which the groove (71,81) or notch (85) extends along an upper peripheral portion of the rear face at a distance of less than 5mm or less than 10mm from the interface, or less than 20mm.