

THE 'LUNCHBOX' RECIPE

One of the latest popular trends in plumbing systems is one that has been around for a number of years, yet only recently has the 'fixture connector adaptor' been inducted formally into the WaterMark certification scheme. Terry Nguyen from PROVE Standards & Engineering explains all.

The product given the technical name of a 'fixture connector adaptor' is used to provide a means of adaptability in the final location of fixtures connecting to the sanitary plumbing system. These products, resembling the form of a lunchbox, have sparked division between those that oppose their existence and others that have capitalised on the functionality they offer.

The fixture connector adaptor has been used in plumbing systems for well over 10 years, and in some respects this category has flown under the radar. In lieu of an appropriate specification, the products were traditionally shoe-horned into some of the similar Standards used in plumbing certification. Testing and assessments covered some of the aspects needed to be addressed, but were missing other critical design and performance requirements that are unique to this kind of product based on how they are used.

FLEXIBILITY APPEALS

Fixture adaptors are used as the final point of connection between the outlet of a fixture to the sanitary plumbing system. The appeal of the product is the flexibility available in the final placement of the fixture with respect to the physical constraints inside a room with fixed walls. The flexibility afforded is seen by some as a 'near enough is good enough' product for rough plumbers using rough measurements. I.e., it's seen as a get-out-of-jail card for when a toilet discharge location finds itself out of position inside the small powder room. Practitioners true to their craft and able to meticulously measure sanitary pipe locations see the fixture connector adaptors as a simplification of the art of plumbing. Designing the construction with the knowledge that one will be present at each discharge point means that plumbers don't need

to be accurate. Looking at the concept from another perspective, though, does highlight one major advantage.

The building industry involves the use of several trades that rarely work in conjunction with one another, trusting that each party fulfils its duty so that construction happens seamlessly. The plan works well until the realisation sets in that an initial error done months ago is too late to correct easily. When a DN100 riser for a toilet discharge point has clearly missed the centre of a narrow space, who is to blame? Was it the surveyor using unsuitable marking points subject to movement on a flimsy fence line? Did the plumber misread their tape measure? Perhaps the carpenter began framing in the wrong spot? Concreters have also even been known to inadvertently shift underground plumbing when backfilling or pouring.

Regardless of who was at fault, the builder has an expensive problem which could have been avoided. By planning for a fixture connector adaptor to be used as part of the original construction, heated arguments and finger pointing exercises are prevented. And the opportunities don't stop with just toilet pans. Shower bases, baths and even floor waste outlets can all make use of the flexibility that fixture connector adaptors offer. Every opportunity to use a fixture connector adaptor is potentially one less crisis averted, and apart from the small cost outlay of a few plastic fittings it is a win for everyone.

A FEW CAVEATS

To realise the benefits, however, there are a few caveats that need to be

remembered. Most importantly, the plumber must follow the manufacturer's installation instructions for each waste connection point, as applicable, because each application will need to be finished differently. For example, a fixture waste adaptor for toilet pans requires a waterway suitable for handling solids. Whereas a product for heated wastewater needs a stronger sealing

ability to counter the effects of thermal cycling, and reversion plastics can be susceptible too. Floor waste outlets are subject to live loads and require increased physical strength. Furthermore, the inlet and outlet connections need to accommodate

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different types of fixtures that adapt to them. Sizes ranging from DN40 to DN100, and materials including plastics, metals or ceramics all need to be considered in the design. Based on all of the variables, it becomes quite apparent that not all products were created equally. Not all products can be used for all applications regardless of whether they bear the WaterMark symbol. The installing plumber will need to observe whether the product has any limitations of use, or of its certification. Products assessed for suitability with toilet pans may not be suitable for heated water applications, or able to withstand live loads.

To make things more difficult, not all products are always supplied with inlet adaptors, and might need the licensed practitioner to supply the balance of components needed to complete the finished product. Creating a finished product is like a recipe in that the procedure is just as important as using the correct ingredients. Interchanging inlet fittings for cheaper alternatives,

swapping out hardware, using noncertified sealants or even taking shortcuts assembling the components changes the recipe. If the plumber cannot master the process, performance in the field will not be replicated to what was demonstrated during product development and testing stages.

The relatively large size fitting has the main body and outlet end connection often cast into the building slab or fabricated into a sub-floor, meaning it is not easy to replace. These installation locations require the products to have a life cycle longer than what would be expected of many other plastic waste fittings. They are inaccessible and a simple misunderstanding of the purpose of the adaptor, ironically, creates a bigger problem than what they were supposed to solve.

WATERMARK COMPLIANCE

WMTS-536 is the specification that has been drafted and published to

have these products included into the WaterMark Certification Scheme. The Specification was released only last year and is a benchmark for design and performance requirements to mitigate risks based on all intended applications of use. For example, products designed for heated wastewater are put through a thermal cycling test fully assembled. Products designed for toilets are tested with a range of toilet pans to confirm flushing performance isn't affected by having them fitted to the outlet. I.e., check waste is effectively removed, and a syphon isn't created emptying the bowl of the pan. Those designed for floor wastes are tested to confirm they will not break under foot.

The jury is out on whether these products create more problems than they solve. However, following installation instructions strictly, using correctly supplied hardware, and observing any limitations of use should replicate the same performance

of the test sample that proved itself during testing. If the product is missing instructions, has unclear instructions, or requires you to supply other materials that you cannot guarantee performance for, then it is worthwhile reaching out to the manufacturer to obtain everything needed to finish the recipe. It is important to understand the limitation of certification of products being installed and check that the application is suitable. Simply observing the WaterMark symbol and unquestioningly believing the product is suitable for any application may cause countless amounts of non-compliant installations unlikely to be covered by insurance. ■

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