

Technical Commentary

Fit for Purpose Imperatives for Public Toilets Requires Integration of Components

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The word integration to most of us will bring back school memories of mathematics...differentiation...integration...dy and dx...all cerebral testing stuff which we would prefer to forget...unless you are an engineer...or a mathematician.

The integration I would like to talk about is in the design/manufacture of fit for purpose toilet buildings and components...an integral part of our business model...as it is were.

Our single most important integration is our non flush toilet buildings. The pedestals and link components to our CWT collection wells must obviously have a direct drop path....no corner cutting here...no corners at all actually!

So in a two booth building...AS1428.1(2009) compliant...one accessible booth + one ambulant booths...the orientation and positioning of the pedestal the mandated distance from adjacent walls and door circulation spaces is absolutely critical...which impacts on the design of booths...and the whole of the building...integration must take place.

Water carriage flush systems...using conventional plumbing arrangements...present none of these issues. This integration necessity is unique to non flush toilet buildings.

Too often, we see architect designed buildings with no thought of integration to a collection well or an alleged composter ...the sole concession being a dotted line down on the plans.

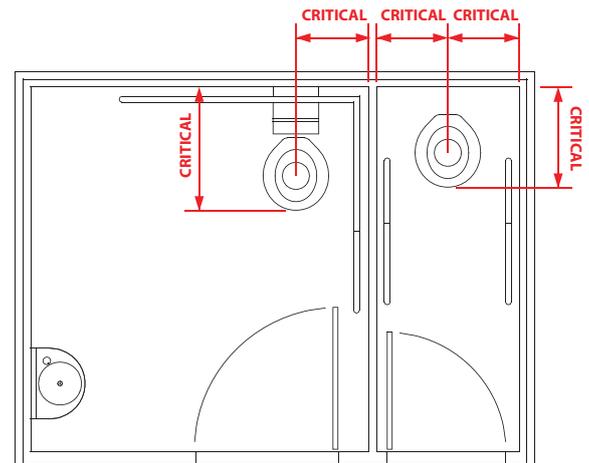
On a recent project, we were presented with a signed off architectural drawing...commissioned by a State Authority...with no thought given to integration ...other than some dotted lines representing the below floor collection wells.

Pureable had to overlay the proposed four booth design, over an array of CWT collection wells, allowing for pedestal penetrations, pump out port outside the building line and ventilation ports outside the building line.

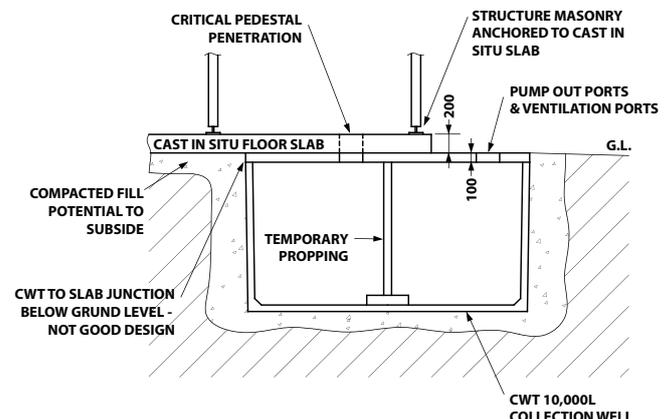
A further complication was that the relativity of the two collection wells to each other and the lid orientation was critical to achieve the mandatory pedestal locations in the toilet booths. This lack of integration then cascades to the engineering certification, where these dotted lines turn a simple raft slab design in to the most complicated thickened slab design to cater for the expected loads.

The outcome from the engineering analysis was 200 thick cast in situ floor....total floor thickness 300 mm of reinforced concrete. This to support pedestrian traffic only!!!

$$\int x^7 dx = \frac{x^{7+1}}{7+1} + c = \frac{x^8}{8} + c$$



Critical dimensions for AS1428.1 (2009) Access compliance



Worst case design ...no forethought put in to integration of the toilet building with the collection well system below the floor.

This is not good design. This is a waste of the earth's precious resources .This is not integration.

Here at Pureablue, we have researched all relevant Standards and Codes....and designed a suite of buildings that have these integrated features. You the client, get these features at a huge discount, as the costs are amortized over many, many buildings. There are no project specific architects fees.

Our external sink/column is another example of integrated design.

We need to have a column to support the roof.

We need to have a sink with a mandated circulation space.

We need to have water in plumbing routing capacity...located behind vandal resistant guards. We need to have waste water routing capacity. ...located behind vandal resistant guards

We need to have it robust.

And we need to have it in the sun to harvest free UV rays to keep it sterile and clean.

All these targets are reached. It is not a selection of off the shelf proprietary parts...it is an integrated design, totally fit for purpose.

Similarly, grab rails and back rests. The AS1428.1(2009) update specified a backrest...which must support a load of 1100 Newtons ...1.1 K Newtons ...in all direction...as specified in Clause. 15.2.4.

This is a substantial load...my school boy conversion is equivalent to a 110 kilogram person standing on the backrest.

Our solution was to integrate the grabrail and the back rest...and then integrate the combination with structural members behind the cladding...and fix with a tamperproof fasteners.

The Chinese manufactured product I have seen would fail this load requirement....especially if the mount points are not integrated with structural elements in the wall. I would not relish a court appearance when an obese person injures themselves and initiates prosecution of a building owner/manager. Whose insurance pays?

Our ultimate integration component is the Stainless+Concrete wall panel system we developed at Pureablue.

This integrates stainless steel dimpled internal lining, into a precast concrete wall panel.

The external smooth masonry external finish...treated with an ant-graffiti coating system....has excellent graffiti management features.

Thus delivering a truly fit for purpose wall panel system for public toilet. Physical vandal attack... graffiti attack...fire setting and burning... are all elements considered in the design process to deliver an integrated fit for purpose product.

Finally...our integration of component and building design... delivers a holistic package.

We are fortunate to have:

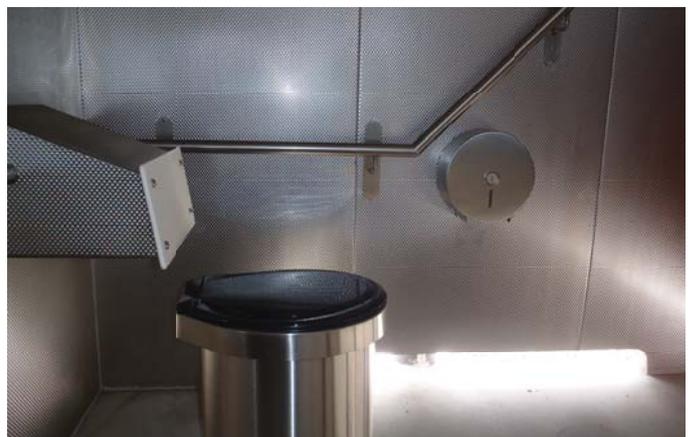
concept + design + manufacture + install capacity

all under the one umbrella...much like Toyota , Mercedes Benz, Boeing, Airbus.

These Pureablue in house capacities deliver truly fit for purpose product. At a realistic cost. With a good service life and a simplified cleaning /maintenance requirement.



Our standard sink column ntegrated as the sink column housing all plumbing and hot-dipped galvanised as a finished fabricated element.



Pureablue accessible grab rail integrated with the AS1428.1(2009) backrest, and allowing for the 1.1Kn load in all directions mandated in the Standard.