

TRAINING OFF THE PAGE - JON PALFREY

# TAKING 'HANDS-ON' TRAINING TO THE INDUSTRY

**Jon Palfrey** says training involving hands-on demonstrations of key pieces of equipment is more important than ever.

**A**s the plumbing industry becomes more complex due to an increasing level of technology and innovation, the need to provide a learning outcome that gives the apprentice, plumber or hydraulic consultant the opportunity to learn with live and operational equipment and components is vital – and a key to the industry maintaining its expertise in the building industry.

In my experience with plumber training, I have noticed a greater training and learning outcome normally occurs when trainees gain a 'touch and feel' awareness of systems and equipment. This means subject matter is supported by a live-format demonstration, preferably using installed or operational equipment.

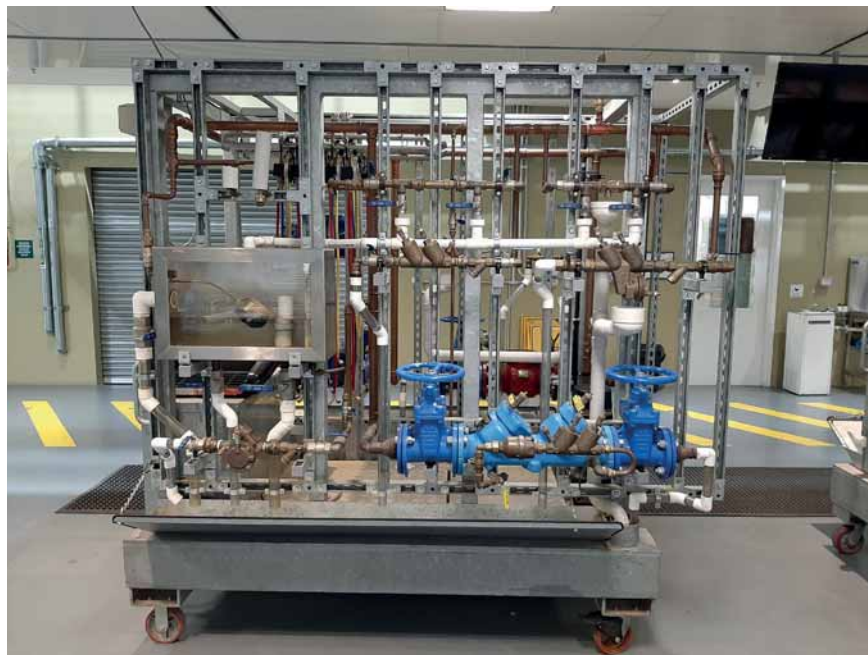
Training platform modules that have inbuilt plumbing items ranging from gas water heaters to cookers, TMVs, backflow prevention valves and sanitary systems, are now available to provide an advantageous training and learning outcome.

The training platform module is a robust practice demonstrative model that has multiple devices and systems or appliances, which allow the learner to work on a model that is directly related to a job or application that he or she will experience on site or in the field.

## TRANSPORTABLE TROLLEY

Having the training topics set up on a transportable trolley platform gives the learner the opportunity to handle and experience the subject topic so as to simulate a functional plumbing system.

For example, domestic sanitary systems can be shown on the side of a training platform, and hot and cold-water services on another, thereby providing an interactive experience and taking the learning off the page



Demonstration trolleys offer students a 'hands on' experience of real-world plumbing systems.

for greater visual comprehension and understanding, particularly if the learner does not have the capacity to experience all aspects of plumbing and associated installation and commissioning practices during their apprenticeship and subsequent years in the field.

Training platforms that have the capacity to adjust the working module – and therefore provide the instructor with the demonstrative ability to show how a system actually works – are now at the forefront of industry training and education.

Kinesthetic learners can now see and learn from the availability of a sanitary system [both residential and commercial] live in operation and simulated to perform with air for drainage and pipe fall requirements. Also, for this device to be adjusted

with fall and air reduction allows the instructor to demonstrate the effect of reduced air for drainage ventilation, reduced fall on pipelines, and the true function of a drainage system in operation by observing smoke [ice] with a fan.

Simulation in learning can provide the apprentice plumber with the complete learning outcome by providing the ability to visualise and comprehend the function, regardless of whether it is a system he or she regularly sees in the field or during day-to-day work.

## BACKFLOW PREVENTION PLATFORMS

These platforms provide the opportunity to combine a visual concept with a hands-on experience.

Often a written, theory-based learning method can be significantly enhanced when a student can see

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<b>GD3</b>	75mm to 85mm	51mm	128.7
<b>GD3.5</b>	89mm to 100mm	51mm	193.0
<b>GD4</b>	102mm to 110mm	51mm	276.3



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An array of demonstration trolleys – ready for action.

the related plumbing componentry and systems in safe and practical working format.

**TMV PLATFORMS**

Thermostatic mixing valves [TMVs] that can be tested under working pressures and dismantled to show the internal sections allow the student to fully understand the operation of the valve through its intended, installed function.

This platform model demonstrates the connection of cold and hot water to provide the desired outcome of tempered water.

**SANITARY DRAINAGE SYSTEMS**

The sanitary drainage system training module platform incorporates a clear pipe drain and vent system with the waste pipe, enabling variation of fall to demonstrate the effects of wastewater movement, particularly if insufficient fall is applied/installed.

The drainage-ventilated systems also incorporate standard vents with a three-way valve to switch to an AAV [air admittance valve] to demonstrate how these devices function.

The traps to sinks and basins are fitted with solenoid valves to dump the trap water, including a smoke machine/ device showing how sewer gases can

escape, demonstrating how wastewater and air operate within drainage and ventilated sanitary systems.

The associated platform tank is also fitted with a valve to isolate the vent to show the effects on drainage discharge if the chamber is not sufficiently vented.

These platforms are designed to be self-sufficient in operation by using recycled water from a holding tank, delivering back to fixtures. A toilet cistern with a clear tank demonstrates how the ball valve and air gap separation is required, showing cistern flushing incorporating different volumes of water to simulate the effects of the drain in operation.

An overflow relief gully is incorporated into the platform to show visually why it must be positioned below the lowest fixture point.

The sanitary mobile platform will provide assistance in competencies in completing the following training unit codes:

- CPCPDR 3021A – Plan layout of a residential sanitary drainage system.
- CPCPDR 3022A – Install below-ground sanitary draining systems.
- CPCPSN 3022A – Install discharge pipes.
- CPCPSN 3024A – Install and fit off sanitary fixtures.

- CPCPDR 2021A – Locate and clear blockages.
- CPCPDR 2025 – Drain work site.
- CPCPDR 2026A – Install prefabricated inspection openings and enclosures.

**DOMESTIC COLD WATER**

This training platform incorporates the use of tank water, which will be cleaned via filters and UV sterilisation incorporating CPCPWT 3023A – Install and maintain domestic water treatment equipment, thus ensuring water in the training system is always clean and clear of contaminants.

The cold-water platform also demonstrates domestic water services from the mains water supply, including water meter and backflow prevention with the connection to fixtures and connection to the pump via the tank.

Water services can be reticulated for hot and cold water supply to the fixtures with temperature control devices installed with gauges, showing actual temperatures in the cold and hot and tempered water supplies.

Fixture set outs and noggins are visual with dimensions shown at each point, with part of a wall frame being timber and the other being a metal stud showing typical applications found in the field today.



Nothing beats hands-on experience with TMV platforms, sanitary drainage systems or gas fitting designs.

If, due to work experience limitations, the learner has not had the hands-on opportunity that provides a full understanding of the concept in plumbing that is required to successfully carry out the task of installation and commissioning, then a training platform module can provide the opportunity to gain a live visual understanding, and therefore complete a task through greater understanding and comprehension.

Having a portable platform also allows the class to gain an awareness of the practical reasons behind a code or regulation.

As a perfect example, the sanitary drainage platform provides the instructor and learner with the opportunity to observe drainage performance, and to interpret the requirement of fall or air for correct drainage discharge, and to have an opportunity to introduce variations of fall and air to highlight the impact of incorrect design and installation methods.

The platform models also provide the examiner with the ability to demonstrate the drainage and code requirements that are in place and why these regulations need to be met.

The introduction of smoke ice moved by a fan in clear pipeline can now highlight parts of a drainage system that have been previously hidden, fully demonstrating how a drainage system actually functions and how air is necessary for the system to correctly flow.

Faults can be introduced to provide a greater level of competency from a learning outcome, for example gas appliance service and maintenance learning.

#### **GAS APPLIANCES**

With appliances being available for training, current gas appliances need to be used not only to offer an understanding of function, but also to highlight basic fault finding and commissioning procedures.

A portable platform also gives the training provider the ability to take the necessary practical learning experience to other suitable locations, which can help a candidate gain exposure to a particular area of plumbing that may be unfamiliar – a practical, hands-on learning outcome to help someone gain a necessary qualification or enhance skills.

Commercial hot water and maintenance presents a platform module that covers all areas of installation, commissioning and fault finding, where applicable, but most importantly the visual concept of a particular area of plumbing. ■

Jon Palfrey is the Thermal Energy Solutions/Rotex Commercial Manager. He conducts training to industry groups relating to all things water heating.



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