Reducing the risk of scalding accidents

Accidents involving hot water systems cause serious injury to thousands of Australians every year. Peter Behr of Thornthwaite Technologies explores the benefits of compliance to Australian Standards and mitigating the risk of injury via installation of an integrated system for managing bathroom solutions to reduce the costs of compliance and litigation.

Each year, thousands of Australians are injured by hot water scalds, some causing burns that can require long-term rehabilitation and recovery, or even be fatal.

Bathrooms in commercial facilities such as sport and leisure centres, schools, health care facilities, shopping centres, office blocks and industrial wash areas are required to provide delivery of safe and hygienic water.

Adherence to modern safety standards, regulations and adopting a risk mitigation strategy can minimise the incidence of injury and litigation wherever hot water is stored or used.

Scald injuries

Hot water scalds can leave people with horrific burns that in some cases are life threatening. Up to 1,800 Australian children require hospitalisation for scald accidents involving hot water every year, whilst dozens of elderly people and workers also require medical attention for injuries sustained from carelessness or hot water systems that simply fail.

Many existing hot water systems in Australia have storage temperatures of approximately 70°C. Exposure to water at this temperature can cause full thickness epidermal burns in less than a second, whilst exposure to hot water at 50°C may take up to five minutes.

Thermostatic mixing valves are used to bring the hot water temperature down to 50°C (or less in critical areas such as child care or health facilities or as identified in risk assessments) for sanitary fixtures used primarily for personal hygiene such as basins, showers and baths.

Australian standards for water safety

Government safety regulations and plumbing Standards are helping businesses reduce the risks of injury and also provide strong guidelines for maintenance and management of bathrooms. In any area where water is used, temperature control, flow control and regular maintenance are vital elements for safety.

Australian Standards set out specifications and procedures that ensure that a material, product, method or service is fit for its purpose and

consistently perform as the product was intended.

The AS 4032 suite of Australian Standards outlines the specification and performance of thermostatic mixing valves, tempering valves and end-of-line temperature activated devices; as well as requirements for testing and maintenance; including the replacement thermostats and critical components from within thermostatic mixing valves; or the replacement of the complete tempering valves.

Preventative maintenance such as cleaning strainers, changing o-rings where specified by the manufacturer and verifying the operating performance of thermostatic mixing valves, for example, is required every 12 months and replacement of thermostats every 5 years to ensure that water temperatures are consistently within safe ranges, and that the valves are performing correctly.

The objective of Standards governing plumbing installations is to provide service personnel with specified requirements for field testing and maintenance of devices used in bathroom installations. Whilst the majority of facilities, particularly in health care, strive to comply with Standards and maintenance requirements, scalding incidents still occur in poorly maintained bathrooms.

Cost of compliance is often cited as an issue, as is cost of maintenance, however given that the risk of injury, hygiene and potential cost of litigation, a risk mitigation approach to washroom management is a vital and valuable method of ensuring that safety is at the forefront of maintenance procedures and that opportunities for better technology and product quality can be capitalised.

Risk assessment and management

Risk assessment is an important and ongoing process for any commercial building or facility. Risk assessment involves careful examination of anything that has the potential to cause harm, then taking appropriate action to minimise the likelihood or onsequences of anyone being hurt. Managers of commercial facilities with bathrooms have a duty of care to take all reasonable steps to keep users safe from injury and health risks.

> Risk mitigation is about identifying, measuring, testing, monitoring and reducing the likelihood of accidents occurring.

When installing new facilities, or upgrading existing services, risk assessment provides a clear opportunity to determine what health and safety issues need to be addressed, particularly in the minimisation of scalds and other injuries, as well as prevention of exposure to water-borne Legionella bacteria.

Prevention of injury is far better than reacting when it occurs, and following best practice guidelines to ensure health and safety minimises the potential for system failure or serious injury – and minimises the probability of punitive measures and criminal or civil litigation where there has been procedural failure to maintain hot water systems.

This approach – known as risk mitigation – is about identifying, measuring, testing, monitoring and reducing the likelihood of accidents occurring.

A risk mitigation approach can also review potential long-term issues with maintenance and service needs, particularly in terms of the preferred solutions or components chosen for new installations, and establish documentation procedures to show compliance with regulations.

It is vital for management to keep appropriate records of servicing, maintenance and a list of parts

used within a bathroom facility, because these identify compliance with standards and regulations. If an accident or injury occurs, and such documentation has not been kept up to date, or easily accessible, it can be seen as non compliance.

The added bonus of undertaking risk assessment and keeping appropriate documentation is very clear – understanding the health and safety issues within a bathroom installation allows facility managers to design a blueprint for installation, and ensure that the system is scheduled properly for regular maintenance. Over the lifetime of a bathroom, this can help to estimate and monitor the costs of maintenance, upgrades and ongoing cost of compliance with safety regulations.

Installing a bathroom solution

An integrated system that addresses the main concerns of safe delivery of warm water to showers and basins is vital for new bathroom installations.

Rada Sense, a bathroom solution for showers and basins from Thornthwaite Technologies, offers modern bathrooms a proven combination of safety, hygiene and total thermal control of water. This product incorporates the latest in digital thermostatic mixing valve technology that enables maintenance staff to easily programme temperature settings, automatic shut-off times, system maintenance and will be compliant with Australian Standards.

With full no-touch temperature and flow control for the person using the hand basin or shower, as well as duty flushing and thermal disinfection to combat Legionella growth, it sets new standards of hygiene. For the engineer, Rada Sense provide usage information, service data as well as regular automatic duty flushing.

It is an integrated method to ensure that the risks of infection and contamination from water-borne bacteria are minimised. The mixing unit is factory-set to comply with temperature settings appropriate for hospital codes of practice.

Maintenance

Since bathroom maintenance can present some real challenges – costs, manpower and replacement of parts, as well as conforming to government guidelines on occupational health and safety - a solution such as Rada Sense is ideal. Using sealed-for-life components and digital technology, Rada's strength is the reduction in maintenance time and the ability to do reliable fault diagnostics simply and quickly.

Rada Sense is proven combination of safety, hygiene and thermal control of water.

The technical features of Rada Sense are impressive – the control unit incorporates a digital thermostatic mixing valve (TMV) and an intelligent management system for lower maintenance time.

The TMV is sealed for life, and reduces the need for downtime when servicing, only requiring the temperature sensing thermistors to be replaced every 5 years in order to meet the requirements of the Standards.

Summary

Modern bathroom design must give users a safe and pleasant experience. Adhering to safety standards and taking a longer term view of management and maintenance will ensure that not only are your users safe, but that you will reap the benefits of a cost effective solution.

Peter Behr is the General Manager of Thornthwaite Technologies.

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