

APF Plumbing Fixtures Part II

Introduction

April's Technical Bulletin discussed the issues associated with tying potable water systems, drain waste, and vent plumbing systems to Aseptic Production Facilities (APF). These types of connections create challenging environmental design issues for APF spaces, and the article reviewed multiple strategies to address these inherent issues. This month's article reviews two more specific applications common to most APF spaces, hand washing sinks and emergency fixtures like eyewash, facewash stations, and emergency showers. All plumbing fixtures and drains should have a regular cleaning and maintenance program designed to suppress microbiological activity. Fixtures and water should be regularly monitored by an Environmental Monitoring (EM) program to detect uncontrolled growth and profusion of microbiological activity.

Hand Sinks

Hand sinks are an essential component of hygiene in the gowning process, requiring both a supply of potable water and a drain; after Personal Protective Equipment (PPE), they may also serve as the next line of defense after accidental exposure to a hazardous substance.



APF hand sink

Within an APF, a hand sink typically consists of a deep basin surgical hand sink with a self-draining deck; a stainless-steel apron and access panel which fully covers the associated plumbing and wiring; and a tall gooseneck spout faucet with laminar flow head and hands-free, non-mechanical activation sensor. The depth of the sink and discharge point of the faucet should be coordinated to minimize splashing and aerosolization of the potable water as it flows.

The sink's design should provide the fewest practicable number of seams and crevices, which are hard to keep clean and dry. Other fixtures/components associated with the hand

sink include an adjustable thermostatic mixing valve; a digital scrub timer; an exhaust grill to establish an airflow in the area (generally towards the sink area in order to reduce the migration of aerosolized particles); and containers for soap/scrub packs and appropriate gloves. Knee-operated and floor pedal-activated controls should be avoided because they are difficult to keep clean.

Eyewash/Facewash Stations and Emergency Showers

As with all other water and drain source fixtures in APF spaces, there are certain design strategies intended to reduce the potential impact of installing emergency fixtures. It's important to note that these fixtures require routine testing and tend to discharge water over a large area, even when using containment devices intended to mitigate spills. Because of this, the number of emergency fixtures within classified spaces should be reduced or eliminated to the extent practicable, and every effort should be made to have one or more doors between emergency fixtures and any Primary Engineering Controls (PECs).

A fully plumbed emergency fixture station should instead be provided as close as possible to classified spaces, and supplementation with sealed-sterile dual bottle secondary stations should be considered following consultation with a safety officer. The duplex bottle station should be made of materials compatible with the cleaning program and should be sealed to the wall with 100% silicone sealant or other approved means to eliminate cracks and crevices.

Conclusion

Using the strategies noted above in combination with those discussed in April's Technical Bulletin, can aid in reducing environmental risk to APF spaces where water and drain connections are unavoidable. Safety Officers need to be involved in the design process, as the layout of emergency fixtures and devices is part of a comprehensive safety plan. The overall design must be carefully coordinated with end users to confirm that it works closely with the user's standard operating procedures for the space.