

DRAINAGE SYSTEMS

Durable Drainage Systems Assert More Prominent Role

Commercial kitchens have unique drainage needs that stainless-steel trench drains can fulfill.

BY MICHAEL O'BRIEN

When facility designers get their list of must-haves for commercial kitchens, size and layout of the space — calculated by food or raw material preparation and essential equipment — frequently takes precedence. They must take into account faucet

and sink locations, ranges and their attendant hoods (with required CFM), all accommodation for personnel within the space, and the storage of cookware and tools.

Let's admit it: Cooking is essential in a large kitchen. However, designers too often overlook one of the most important facets of keeping a busy kitchen operational and clean: floor drains.

Consider the need for kitchen sanitation. Many food morsels or ingredients — and almost every drop of sauce, soup or stew not leaving the kitchen on a plate or in a bowl — ends up on the floor. It's why many kitchens are cleaned between meals or, for food and beverage processing, as routinely as the need requires.

Ensuring that floor surfaces are squeaky clean and free of bacteria and debris places high expectations on a kitchen's drainage — to say nothing of the volume of water required to wash the floor and flush the drains. And the time to do it properly? As the saying goes, time is money.

To Drain, Never to Bottleneck

Here are a few important facets to consider when designing drainage for the commercial kitchens of food and beverage processing facilities.

Sizing drain channels is a facet of the design tied directly to the volume of drainage required. One of the most critical functions of a commercial kitchen drain is to get waste material and water off the floor — quickly. Drainage should never be a bottleneck. The sooner the floor is cleaned and dry, the faster it's safe to work on again.

Typically, there's a 4-inch drain and a P-trap. This meets the majority of flow capacity needs. Though, in some cases, a larger drain surface and channels are needed. At larger facilities, the drains may be several square feet in size, with water and waste material flowing into a broader and deeper channel for faster disposal.

Keeping the floor dry isn't just a safety issue. Sanitation is essential, especially when considering the possible presence of toxic contaminants such as listeria, salmonella and e-coli — what I refer to as the "Big Three."

All Drains Are Not Created Equal

For kitchens drain systems, there's no doubt that stainless steel is the



Unobtrusive, efficient and reliable: a Watts slot drain shown here in a food processing facility.



Blücher HygienicPro drain and push-fit pipe installations for a beverage production facility during construction, awaiting a concrete pour.

best material for a variety of reasons. It's extremely durable and easy to clean and sanitize.

Another important consideration is the manufactured channel grade. All drains are not created equal. Be sure to compare the effectiveness of a drain's ability to carry away wastes and flush water.

Drains, especially those for larger kitchen, brewing and food processing operations, may be 16 inches by 16 inches in size, or 20 inches by 40 inches — or even larger. They should be chosen for their strength

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(sufficient to tolerate the weight of a fully-loaded forklift) and durability. They also should be easy to clean, assuring that solids don't get hung up in them; avoid drains with square corners.

Stainless P-traps have a distinct advantage in their ability to withstand the varying temperatures of water

either dumped into them from large kettles or used to flush the drain channels and surfactants (cleaning chemicals) that may be used. Organic materials and proteins may also go down the drain and into the P-trap.



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cent chromium, 10 percent nickel and two percent molybdenum. The molybdenum is added to help resist corrosion to chlorides and acidic compounds.

When cleaning, it's best to avoid strong chlorine solutions such as industrial bleach or sodium hypochlorite. Even stainless steel can oxidize, often looking like white blemishes. This will eventually weaken the material.

Typically, drainage is sloped to one percent from the trench drain and is anchored in place to become a part of the floor. It's essential to protect it during the concrete pour with a durable channel cover that's in place during all floor work.

Madly Successful Install

Some drains are designed specifically for use in the food and bev-

erage industry, where maintaining hygiene is critical.

Lacking corners or inside cavities to harbor bacterial growth and with resistance to a wide range of cleaning chemicals, these drain systems are unaffected by high-temperature cleaning, caustic cleaners and effluent, or steam disinfection.

Cincinnati's MadTree Brewery chose to install Blücher HygienicPro trench drains in its new 50,000-square-foot brewhouse.

In its old facility, employees would spend 10 to 15 minutes hosing down the floor after a tank cleaning to get all solids down the drain. With HygienicPro drains in the new facility, most of the solids make their way down the drain with little effort; an employee only needs to spend a minute or so cleaning up any loose ends.

Floor/drain washing is required twice a day at MadTree's brewing facility, so the new drains free-up half an hour of labor and save hundreds of gallons of water each day. Over a year's time, the savings are significant and significantly impact the brewery's ROI — simply by selecting the right drainage product.

"The design and engineering of the [HygienicPro] drains made them stand out," says Mike Stuart, MadTree director of people and social strategies. "They proved to easily evacuate any waste going down the drain and used [much less] water in doing so."

It's clear that use, function and drain design should be among the first considerations when selecting a commercial kitchen drain. 🍷

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These all can cause severe problems with PVC P-traps over time. When very hot water is used to flush drains, PVC P-traps — especially when they're snaked during troublesome cleaning operations — are prone to deterioration, cracking and breakage.

Location, Location, Location

Because the primary purpose of drainage is to eliminate waste and flush water within a facility, it stands to reason that the best place for the location of drains is where the most water is. I'm referring not only to water dumped from kettles, but also water used to clean floors and flush the drains.

Many cleaning procedures involve the drainage of highly acidic materials. This consideration alone has led to an industry debate comparing the effectiveness and durability of 316 and 304 stainless steel formulations. The superior steel for most drainage is 316; it contains 16 per-