



Find us online
twitter.com/phcnews
facebook.com/PhcNews

April 2015 Vol 15 | No 4

PLUMBING

Who should pay for your travel time?

p 40

HYDRONICS

AHR 2015: Chicago

p 54

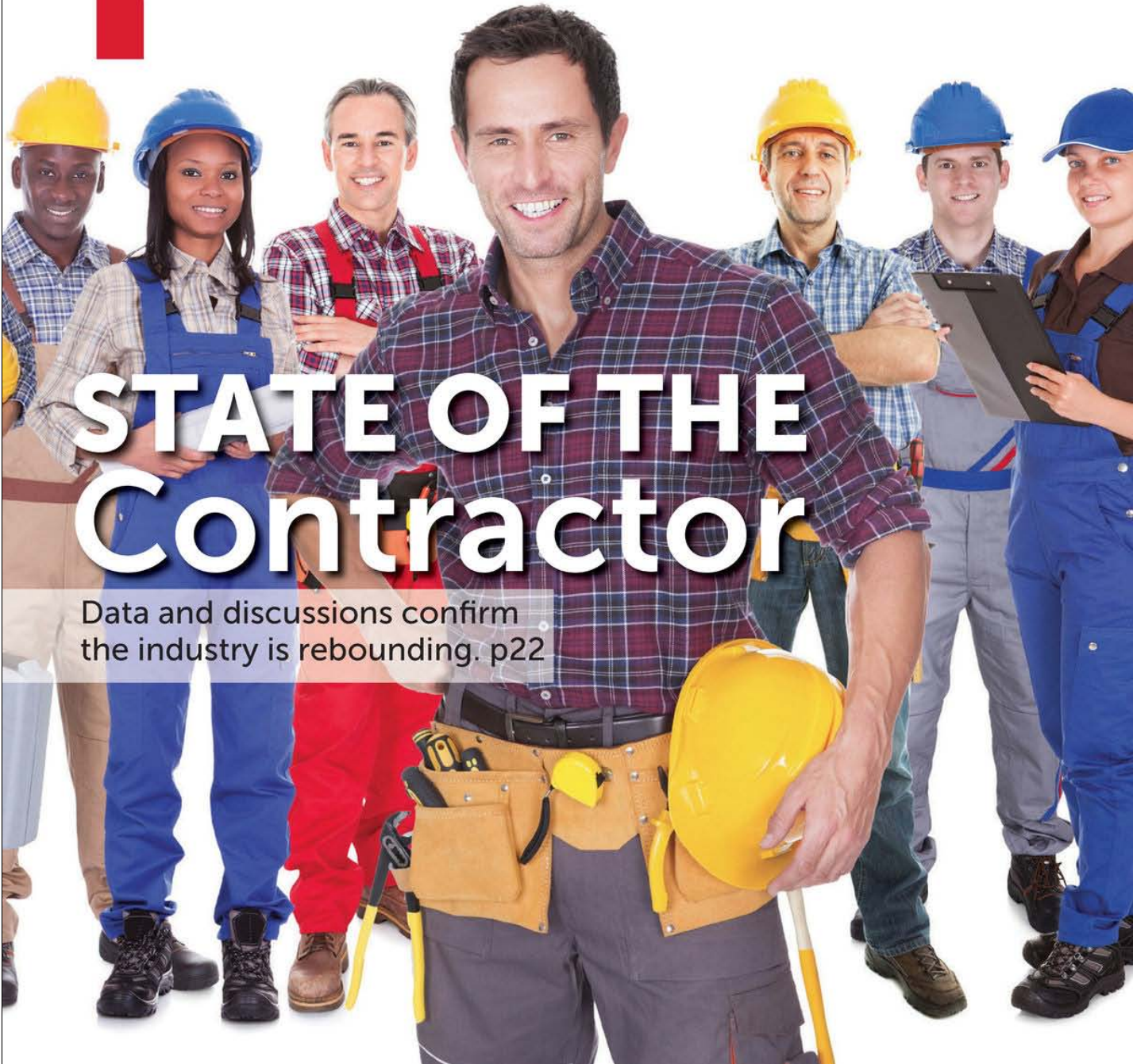
MECHANICAL CONTRACTING

I do

p 62

phc

plumbing + hydronic contractor
news



STATE OF THE Contractor

Data and discussions confirm the industry is rebounding. p22

PLUMBING

Down th' drain

New technology raises lowly drainage to a loftier place

BY CAROL FOSTER WATTS WATER TECHNOLOGIES

Every jobsite offers unique challenges. When it comes to higher-end residential or commercial installations, there are typically few choices to make selecting the right solution for plumbing, process, wash-down, or exterior surface drainage. Ductile iron, PVC, copper and nickel bronze are the usual candidates.

Forcing their way into the mix for designers, specifiers, and installers today are new, über-versatile stainless steel and plastic technologies.

It only makes sense, as new products are rushing in to improve all facets of building performance – from hydronic efficiency to water use, re-use and backflow prevention – that drainage technologies advance as well. But, given their behind-the-wall, under-the-floor, bad breath status, the lowly drain is often last on the list for specifier consideration.

A recent entry onto the drainage stage has been the introduction of stainless steel systems. A wide variety of extremely durable drainage pipe, fittings and trim have entered the global market. For example, Blücher, a Watts Water Technologies company, is a global manufacturer of stainless steel drainage systems for applications ranging from residential bathrooms to large industrial facilities. The company's product range includes standard and customized floor drains, drainage pipes and channels – all in stainless steel to ensure high quality, outstanding flow characteristics with minimal maintenance.

Commercial + industrial use

Hospitals, hotels, shopping malls, and airports all benefit daily from the performance of stainless steel drainage solutions. Properly treated, low-porosity stainless steel has a uniquely smooth surface that guarantees excellent hygiene and resistance to bacteria-laden biofilm.

Stainless steel is a strong, durable, pressure-and chemical-resistant material. It's also light. The weight of a drainage system can be reduced by more than 75 percent compared to cast iron; this contributes to ease of installation. And, stainless steel is entirely recyclable and non-toxic, making it an environmentally friendly solution, also favored by the USGBC for LEED certification.

Stainless steel drainage systems are ideally suited for use in the food and beverage industries, as well as



A pipefitter completes a Blücher stainless steel drainage for a large-scale commercial kitchen that serves a prison in New Orleans.

pharmaceutical and chemical plants. Stainless steel floor drains with gas-tight covers, flushing-rim drains, dual-contained drains, pipes and channels provide superior fluid drainage from production areas, labs and clean rooms.

The fishmonger's choice

It's no surprise, with the risk of being smacked in the head by a 25-pound king salmon careening through the air, that Seattle's 100 year-old Pike Place Market may be best known for its charismatic fishmongers.

Among the many food vendors, fried food isn't hard to find, and the market's waste drainage sees the side effects. The market has grown, and each new deep fryer puts additional strain on the drainage system. Through the years, cast iron pipe has corroded, and PVC has clogged.

As one vendor put it, "We were in a state of constant decay."

Three years ago, market managers concluded that a solution must be found. A recent development has been the introduction of stainless steel systems. Typical products include standard and customized floor drains, drainage pipes and channels.

"Each tenant that had grease-producing fixtures needed to replace their waste drain piping with Blücher stainless steel pipe," said the plumbing contractor at Pike Place Market.

All told, 7,650 linear feet of Blücher stainless steel pipe was installed. So far, they haven't had any callbacks with the new pipe.

"As far as we can tell, grease, oil and fat don't stick to it," said Kevin Vincent, plumbing superintendent at MacDonald Miller Facility Solutions.

Stainless steel: Ideal for hi-temp plumbing

Another interesting application is a new, 164,000 square foot, three-story, and \$80 million prison kitchen/warehouse facility in New Orleans that now has the capacity to prepare 25,000 meals every 12-14 hours, if needed. It can also preserve meals in its freezer for up to 45 days.

One of the most unique facets of the new facility's construction was the specification for 8,000 linear feet of stainless steel drainage piping, chosen because of the resilience and thermal characteristics of the material.

"Stainless steel was the ideal material for the job," explained Jamey Logrande, vice president and senior project manager with Metarie, La.-based design engineering firm Huseman & Associates. Experts there were responsible for design of the building's electrical, mechanical, plumbing and fire protection systems.

"With stainless steel, bacterial growth in the drainage system is greatly reduced," Logrande added. "And, of course, the very nature of this building is to assure permanence and durability."

The material chosen by the general contractor, New Orleans-based Woodward Design-Build, was stainless steel pipe supplied by Blücher.

"We needed a plumbing system

that could routinely move liquids at temperatures of up to 250°F to 260°F because of the multiple 300-gallon steam pressure cookers dumping into the waste system," Logrande explained.

"Blücher has optional stainless steel gaskets that are rated for use at temperatures up to 390°F," Logrande added. "And we needed to exceed the rated maximum temperatures for cast iron couplings and gaskets – just 210°F – so stainless became our choice for the best material for the job."

The sometimes super-high temperature of heavy, semi-fluid, cooked goods was a key concern, but so was the weight and volume of the mass being drained in the large steel pipes used to transport soups and stews to packaging machines.

"We knew of the need for massive dumping of high-temp fluid on a regular basis and, with very expensive, very temperature-sensitive food storage spaces below the kitchen, we knew there'd be no room for error," Logrande said. "We can't afford a leak; the result would be catastrophic."

Seafaring stainless

Alaska's Bering Sea is a billion dollar fishery for the U.S., and more than half that on the Russian side. But, the haul doesn't come easy, as TV series "The Deadliest Catch" has shown us. It takes strong men and stronger boats. Near Seattle is the shipyard of J.M. Martinac Shipbuilding Corp., where some of the world's finest tug and commercial fishing vessels are assembled.

Building boats isn't like building houses. J.M. Martinac typically builds one or two vessels a year, depending on complexity. Recently, the entire shipyard was focused on construction of the Northern Leader – a \$25 million, 184-foot, long-line fishing boat – now one of the largest of its type on the Bering Sea.

"We've built ships up to 250 feet long," said Bob Stonack, purchasing

manager for J.M. Martinac. "Tuna seiners, fireboats, naval tug boats; we build them from scratch right here in Tacoma."

No matter where Martinac ships are deployed, they all share one thing in common. Seafaring components take a beating and need to hold up in the long run. It's a risky business testing one's mettle against the rigors of the sea. No exceptions are made for a ship's plumbing.

"From past experiences, we prefer Blücher pipe for black and grey water systems onboard our boats," Stonack continued. "It's lighter than steel and lasts much longer. To my knowledge, we've never had an issue with it."

Each vessel uses hundreds of feet of stainless pipe, mostly fastened to mounts welded to the underside of the deck. The pipe runs back and forth overhead, taking fluid where it needs to go. It's just one critical component of the ship that allows crew members to focus on their often daunting tasks.

Ships ahoy

According to Lundy, stainless steel sanitary discharge systems have proven their reliability in more than 10 million lineal feet of piping aboard cruise ships, ferries, luxury yachts, naval vessels, cargo vessels and offshore platforms.

The marine industry relies on the performance of stainless steel drainage solutions at sea, where durability and light weight are essential. Clean and hygienic conditions in cabins, kitchens and sanitary facilities are important elements contributing to efficiency onboard.

Dead-on trench drains

Another example of commercial drainage innovations: new, lightweight, plastic trench drains. Illustrative of the newest technology is Watts' DeadLevel, pre-sloped trench drain system. Six- and 12-inch wide by 48-inch long standard sections come with optional ductile iron or polypropylene UV-stabilized frames and talc-filled polypropylene UV-stabilized channels with either four- or six-inch no-hub bottom outlets. The system is frame anchored, IAPMO-certified, and meets applicable DIN Class load class ratings.

Each drainage system comes complete from the manufacturer with channels assembled to frames, grates, lockdowns, frame connectors, end caps, construction covers that eliminate the unpleasant task of

attempting to remove hardened concrete from the channel after the pour. Watts experts tell field pros that – with a simple sketch, showing lengths, flow direction and outlets – they can prepare a package or a list of components to complete the required layout.

All piping connections are "no hub" – using a mechanical (typically neoprene) coupling to join the cast iron, plastic or other pipe material to the outlet of



Lightweight stainless steel drainage is easily cut on site during construction of a prison in New Orleans.

the drain. Bottom or end connections are made with a standard mechanical coupling. Closed outlets are on the bottom of each channel section and on the end caps. Runs may slope to the center, away from the center, or in multiple directions, with a corner, tee, or cross option made without mitering.

The pre-sloped system is 100 feet (30 meters) long. If the jobsite demands a longer drain run, the system can be extended using neutral channel sections, or multiple outlets, with an outlet every 100 feet, sufficient in most applications.

Systems do not necessarily have to be sloped. In fact, neutral trench runs are frequently installed where the ground is already pitched, or where depth constraints restrict the use of deeper channel sections. A two-man crew with rebar driver and laser level can easily set 100 feet (30 meters) in less than a day. Cutting is required only to open outlets, trim end caps, and to make catch basin or tee connections. Grates are installed before the pour.

Thanks to new technology, better solutions are now available for lowly drainage problems. ●

Carol Foster is the North American product manager for drains and BLÜCHER for North Andover, Massachusetts-based Watts Water Technologies.



Stainless steel drains are ideal for commercial kitchens