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Trillium Brewing Co.'s Fort Point location in Boston.

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Redundancy critical on multiple levels for popular brewery-restaurant.

he summer beer list covered nearly the entire human flavor spectrum: Pot & Kettle coffee, vanilla porter, Triple Seesaw blackberry and boysenberry goose ale, Party Pump corn lager, Farnsworth Street IPA and a Patersbier abbey ale, for those keen on Trappist yeast.

These were just a few of the 26 beers on tap at Trillium Brewing Co.'s Fort Point location in South Boston this past summer. The smashingly successful brewery and restaurant has four other locations, either open or soon to be. The beers on tap at any given time only represent a fraction of the roughly 150 revolving and seasonal beverages that the brewers at Trillium create over the course of a year. The 10-barrel system at Fort Point isn't Trillium's largest production facility. Rather, it's a pilot system comprised of stainless steel fermentation tanks and oak foeders for testing new recipes and ingredients. It also brews much of the beer for in-house dining. Fort Point also includes a gourmet restaurant that can seat 490 patrons when the roof deck and patio are open.

Trillium's story of popularity and success is common among many small-batch breweries over the past decade. The U.S. craft beer renaissance has catapulted the hand-made beer experience into the mainstream. Even so, Trillium's success has eclipsed most other craft brews.





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The industry has seen explosive growth. When a niche this clearly defined presents itself, there are service professionals that specialize and grow with it. EH Marchant Co. is Boston's resident brewery and restaurant plumbing specialist.

"Many of the general contractors we work for build breweries and restaurants," says **Michael Petrilli**, president of EH Marchant. "Fort Point was our first Trillium project, and we're currently involved with a second."

From a plumbing standpoint, breweries have very different requirements than the retail and pharmaceutical work that the 116-year-old company often conducts. "Trillium had two distinct and separate needs at Fort Point as it relates to hot water," Petrilli continues. "The restaurant and the brewery each have a standalone, instantaneous hot water plant providing different supply temperatures. Efficiency is of some importance on a job like this, but it takes a back seat to the need for redundancy, satisfying peak demand and constant circulation."

EH Marchant worked with BLW Engineers to design both hot water systems around Navien's NPE-240S condensing tankless water heaters. For commercial hot water systems, Marchant relies almost exclusively on BLW's designs and Navien product.

The two systems at Fort Point are nearly identical. Each one includes five 199,900 Btu/h gasfired Navien tankless units with a 10:1 turndown. The system dedicated to the brewery provides 160° F water for vat cleaning, floor wash down, etc. The restaurant system supplies 140° water for sinks and commercial dishwashers.

"We use the brewery hot water system every day for various tasks such as washing down the floors, cleaning tanks, sanitizing product pathways and, most importantly, brewing beer," brewer **Steve Alderfer** explains. "On an average brew day we use about 15 barrels, or 465 gallons of hot water.

"The restaurant system is also used daily. It makes hot water for all our front and back of house needs, including dish washing, cooking, cleaning and hand washing."

Vital redundancy

It quickly becomes apparent why redundancy is so vital at a brewery and restaurant. Proper surface sanitation relies on high temperatures. And timing is critical in the brew process. If brewers find themselves waiting to complete a step in the process, the batch can be lost, and profits along with it.

"We've standardized on cascaded tankless systems for restaurant applications for their redundancy," Petrilli says. "The fact that the systems are wall-mounted is a big advantage, too, from a space and sanitation perspective. We've had very good experiences with the Navien NPE line. Reliability, price point and the support and training we get from the local rep, David Gooding Co., are all big factors. Stainless steel heat exchangers and 97% efficiency aren't hard to sell, either."



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At Trillium in the Fort Point area of Boston, one system is installed on the back wall of the brewery, behind a variety of fermentation vessels. The other system is in an egress corridor inside the restaurant. EH Marchant built strut frames to mount each of the systems, and covered the five restaurant units with a black plywood barrier for safety purposes.

"The Fort Point building is one of many warehouse-type structures in the old Boston waterfront district," Petrilli explains. "Most are brick and built in the 1800s, so the option to common vent these systems is a big advantage. One of our systems here is sidewall vented and the other penetrates the roof. We'd have preferred to vent both through the roof, but a large part of Trillium's roof space is occupied by a deck."

The units are piped in parallel to a 2-inch manifold and eventually a 1-inch recirculation line. Navien's cascade kit is used so that the system is only firing at the needed input, and so there is always plenty of capacity available when peak demand occurs.

The brewery is equipped with washdown hoses, allowing brewers to spray down equipment and floors throughout the day. Water use is especially high when fermentation vessels are cleaned out, which occurs two or three times a week. The brewery can require as much as 30 gpm. In the restaurant, demand for hot water is lower and steadier, never exceeding 20 gpm.

EH Marchant has installed cascaded Navien systems up to 12 units. The demand for these systems rises continuously in the Boston area. Having a testimonial from one of the city's most successful craft breweries is no small advantage.

"It is great to have hot water on demand, and we've never run out," Alderfer says. "We love the convenience of the system. It is so easy to control the temperature and see the flowrate on each unit. This system greatly simplifies our day-to-day brewing operations."

Of the 270 employees at Trillium Brewing, very few are even aware of the source of hot water at one of the company's locations. But the new systems are a critical cog in the wheel, helping everyone to focus on the company's founding vision: Sourcing from our neighbors whenever possible, brewing with the seasons and representing styles that speak to our region's agricultural heritage. **pme**