



# PJM Pipeline

Plumbing Lic. No. 7969 | HVAC Lic. No. 19HC00113011 | MBE Cert. No. 72727-21



## Collaboration Essential in Vivarium Renovation Project

Expectations were high on a recent vivarium renovation project, and contractors were challenged to collaborate closely on every level.

Complicating the project were the tight quarters – small rooms, ceiling spaces, corridors, below-ground spaces – in which the HVAC and plumbing work would take place. Close coordination was required to develop a precise project schedule to prevent trade overlap in these small areas. Building Information Modeling (BIM) was utilized to determine placement of ductwork, equipment, piping and architectural features.

The vivarium lead was closely involved in project planning and coordination, as well as throughout construction and quality control, and this involvement was a significant help when questions arose on how the space would function. PJM made several recommendations during the submittal process from a service and ease-of-access standpoint that were adapted into the design.

Following mechanical demolition, PJM proceeded with plumbing and HVAC installation. The vivarium's plumbing systems consisted of underground sanitary and trench drains, plumbing for cage washers, autoclaves, booster pump, animal watering system and clean compressed air. On the HVAC side, a new high-efficiency chiller and boiler plant was installed to back up campus systems in the event of system failure. A custom-designed and built heat recovery system was installed to capture energy from the exhaust air system. This energy was transferred to the building's air handling unit via a glycol piping loop used to preheat the outside air, thus reducing the energy required to temper the outside air.

Because it was an existing vivarium and many of the walls remained in place, PJM and other trades closely adhered to their individual schedules, moving room by room and area by area to keep the project running smoothly. When issues did arise, crews worked extended hours to minimize disruptions.

The user pressed for a minimal punch list and an early start on the commissioning, which PJM met. Several of the facility's key maintenance personnel were involved in the commissioning effort to gain an understanding of the vivarium's systems their operation to prepare for building turnover at the end of the project. Validation of noise levels, air balancing, room air changes, lighting, and pressurization were of particular importance.



## PJM Now Offering Sewer & Drain Services

- Video Inspection
- Water Jetting
- Sewer & Storm Drain Cleaning

With our state-of-the-art camera and recording equipment, PJM can easily locate problem areas, clogs, obstructions, leaks and broken or deteriorated pipes with pinpoint accuracy. We provide water-jetting services, powering away obstructions and scouring pipes to restore full free-flowing capacity without the use of chemicals, as well as traditional mechanical cleaning methods. PJM is on call 24/7/365 for all your emergency service needs.



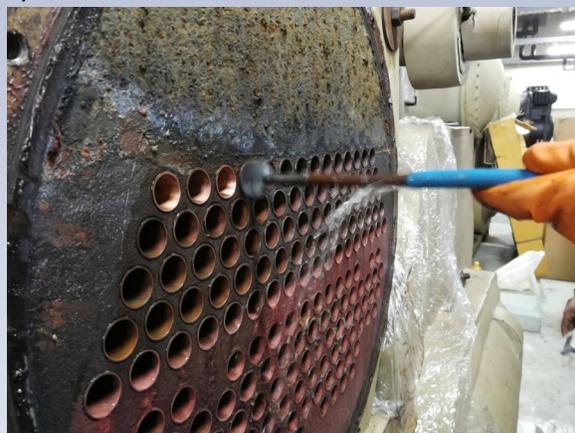
## Service Photo Album



## Chiller Tube Cleaning & Maintenance for Best ROI

Keeping evaporator and condenser tubes as clean as possible is key when it comes to maintaining chiller efficiency. If interior tube surfaces become fouled with scale, mud, algae, sludge, or other contaminants, even in small amounts, thermal resistance causes the chiller to work harder and energy efficiency plummets. In fact, inefficient chillers can expend as much as 30% more in energy, according to the DOE.

Manufacturers typically recommend cleaning condenser tubes annually. Evaporator tubes should be cleaned about once every three years for closed systems, more often for open systems. There are two basic methods of cleaning chiller tubes: chemical and mechanical.



In **chemical tube cleaning**, an acid solution is circulated through tube bundles to break down or soften calcium, lime, rust, and other deposits. This process should always be followed by a thorough mechanical cleaning. While chemical cleaning can be quite effective in many cases, it can be costly and time consuming.

**Mechanical cleaning** is effective for removing accumulate materials such as mud, sand, and algae from smooth-bore tubes, and there are several means with

which to do it. The old-fashioned **rod and brush** method is sometimes still used, but is time and labor intensive and is only moderately effective. The **chiller tube cleaning gun**, a good alternative for lighter deposits, propels **brushes, rubber bullets, or scrapers** through tubes using compressed air and water, or high-pressure water alone to remove deposits. The **rotary tube cleaner**, an affordable and effective method, utilizes a motor to rotate a flexible shaft that can be fitted with a variety of brushes and other tools. Rotary tube cleaners are the best choice for **internally-enhanced chiller tubes**, which employ spiral grooves to provide better heat transfer.

Many new chillers come equipped with **online tube cleaning systems**, which can also be retrofit onto existing chillers. One type utilizes brushes that are trapped in plastic baskets attached to both ends of each tube. The direction of water flow is periodically reversed, causing the brush to travel to the opposite end of the tube. Another type of system features sponge balls that circulate through the tubes and keep surfaces clean. With proper water treatment, automatic systems can be extremely effective and eliminate the need for tube cleaning. Though retrofits can be expensive to purchase and install, payback periods are typically less than two years.

When a new customer complained of cooling and heating issues, our technician's quickly zeroed in on chilled water and reheat hot water conditions. The system was found to be heavy with silt, sediment and rust. Strainers were cleaned, and coils and piping were reverse-flushed. Pressures, flow and heat transfer were verified, temporary filters were installed to catch excess sediment, and the water was treated with a rust inhibitor.



The fan motor of a large air handling unit was overheating and shutting down on the first warm day of cooling season. Our tech found that an out-of-production 125-amp breaker was single-phasing due to an internal crack or break on the C phase. After some digging to find a replacement, we located and expedited delivery of a reconditioned breaker and had the system up and running within 24 hours of the initial call.



## PJM Welcomes Service Manager Jeff Cirz

PJM Mechanical Contractors, Inc. is pleased to announce that Jeff Cirz recently joined our organization as Service Manager. With our continuing commitment to providing customers with top-tier expertise and service, Jeff is already proving to be an invaluable addition to our team.

Jeff has had an impressive 26-year career in commercial and industrial HVACR. Starting off in 1993 as a service technician, he quickly moved his way up through the ranks at Hilton and Siemens Building Technologies. For the last 15 years, he worked for Johnson Controls in various positions including Lead Controls Technician, Service Manager, and most recently, Branch Service Manager. He holds a BS in Business Administration from Kean University.

In addition to his wealth of experience in service, maintenance, repair, installation, and replacement of HVACR systems, Jeff is highly experienced in control systems, building automation, security, and fire alarm systems. He is a certified OSHA 30 instructor, New Jersey Black/Blue Seal Refrigeration certified, and CPR/AED certified.

Jeff resides with his family in Toms River, New Jersey. He has served on Toms River Fire Company #2, including as Chief and, currently, Safety Officer since 1992.

## EMBR WAVE Bracelet & Mobile App: Personal Heating and Cooling at the Press of a Button

If you're a person who always feels sweaty and overheated, or perhaps you're the one who's always bundled in a heavy sweater while everyone else is walking about in short sleeves, wouldn't it be nice to have your own personal thermostat? A new product called the Embr Wave claims to be just that.

Developed by three engineering students who hit upon the idea while working in an always-freezing laboratory at MIT, the Wave is a device resembling a large watch that's worn on the inside of the wrist. By toggling a switch that sends waves of heat or cold to the wrist, the wearer can create a perception of feeling either warmer or cooler on demand. Think of how holding a hot mug of coffee makes your body feel warmer, or how dangling your feet in a cool swimming pool can cool you down on a hot summer day. The Wave creates the same sensation by heating or cooling your inner wrist, an area of the body with a high density of thermoreceptors that are highly responsive to temperature change.

The Wave, launched in 2018, surprised a research team from UC Berkeley with its effectiveness. The device has seven temperature levels; using the median hot and cold settings, testers felt an average of 5.8 degrees cooler after five minutes of cooling and 4.6 degrees warmer after five minutes of heating. Online reviews are mostly very positive, with most negative reviews complaining about various bugs like battery life and comfort, many of which can likely be corrected in future versions. At a current cost of \$299, it's a price many of us who run too hot or too cold might be more than willing to pay.

