

PJM SEASONS

Quarterly HVAC News

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PJM responded to a no-cooling call from a new customer on the first warm day of spring and quickly found a **failed compressor** to be at fault. The facilities manager was upset, as it was the second failure in five years. Further analysis revealed an improper refrigeration piping job was starving the compressor of critical lubrication. PJM corrected the piping problems and replaced the compressor.



A Lawrenceville facilities manager called PJM to investigate **failed bearings** on several pumps. Frosting and fluting on the bearings indicated VFD-induced shaft voltage, so we installed shaft grounding rings on all VFD pumps and fans as an inexpensive way to protect the equipment from future bearing loss and prevent downtime.

REPAIR vs. REPLACE: What to Do When Your Old HVAC Equipment Breaks Down

The decision whether to repair or replace is a difficult one that every building owner must eventually face when aging HVAC equipment breaks down. PJM Mechanical is here to help you weigh the pros and cons of repair vs. replacement.

The first question, understandably, is always, “how much will it cost”. While any decent HVAC contractor can quote prices for repairing or replacing a piece of equipment, calculating true cost is never quite that simple. Choosing whether to repair or replace based solely on comparing one price against the other is an uninformed one that can cost a bundle down the line.

What do we at PJM recommend? To start with, when the equipment in question is newer-to-middle-aged, relatively energy-efficient, and properly maintained, repair is usually the better option, especially when detailed preventive maintenance and repair records have been kept. If it’s an older unit nearing the end of its life cycle, however, the decision-making process is far more involved because the difference between repair costs and purchase price is only one of many factors that go into determining actual value. The key is to determine whether the cost of new equipment sufficiently offsets the price of repair.

As HVAC equipment ages, it breaks down more frequently. Maintenance and repair costs increase, and frequent downtime is disruptive, inconvenient, and cuts into productivity and profit. Some parts and components such as compressors, control boards, drives and coils can be quite costly to purchase and labor-intensive to replace, and can be harder to find as time goes on and equipment gets older.

Utility costs are another important consideration, as older units can be huge energy hogs and most new equipment is far more efficient, often to the tune of tens of thousands of dollars per year, and sometimes into the hundreds of thousands.

Decision makers should also calculate the value of new warranties, manufacturer rebates, and energy incentives. PJM Mechanical Contractors, Inc. can help owners and facility managers determine the value of repair vs. equipment replacement and make their best, most-educated choice.



The Importance of Cooling Tower Water Treatment & Maintenance



Proper water treatment and a regular maintenance program are important requirements when it comes to operating a clean, efficient cooling tower. During routine operation, cooling towers collect dust, pollen, and pollutants from the air. These accumulated contaminants can cause scale and corrosion, which decrease energy efficiency, and provide prime breeding grounds for fungus and bacteria including deadly Legionella. Regular cleaning and maintenance work to improve energy efficiency, extend the lifespan of the cooling tower and related HVAC systems, optimize water treatment chemical performance, and reduce serious health risks.

It's important to maintain an effective water treatment regimen to prevent corrosion, scale, fouling, and microbial contamination. This can be achieved using chemical inhibitors or with chemical-free, environmentally-friendly methods that remove microbes and particles by applying electrical pulses to tower water. Cooling towers can be metered to measure the quantity of water put into and discharged from the tower to conserve water, better manage tower efficiency, and eliminate sewer charges for water that does not enter the sanitary sewer system.

Twice a year, cooling towers should be inspected, cleaned and disinfected to remove accumulated scale and debris. Components and piping should be visually inspected and checked for vibration, leaks, and noise, and drift eliminators should be power washed. Nozzles should be inspected, cleared of debris, and replaced as needed. The sump screen should be cleaned to allow maximum flow to the pump. Heaters should be cleaned and inspected for broken or cracked elements, a common problem. And, of course, belts should be replaced regularly and motors greased as needed.

PJM Expert in VRF Service and Installation

Variable refrigerant flow (VRF) technology is gaining ground as one of the fastest growing segments in the HVAC industry. Invented in by Daikin in Japan in 1982 and common throughout Europe and Asia, VRF systems can efficiently and simultaneously heat and cool separate spaces in the same building for energy savings of 30% or more over traditional HVAC systems.

VRF systems utilize inverter-driven compressors to modulate the flow of heated or cooled refrigerant to individual units for on-demand comfort control. Significant energy savings are obtained through the ability to operate only at the needed flow rate, and by utilizing heat absorption output from one cooled space to provide heating for another. Large distribution fans are not needed in VRF systems, nor are multiple chillers, boilers, piping, and pumps. Ductwork needs are minimal or eliminated altogether. VRF systems are extremely quiet, flexible, and provide superior load matching for increased comfort and dehumidification.



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There are four main types of VRF systems: cooling-only, heat pump, heat recovery, and water source. A growing numbers of building owners are opting for VRF on new construction projects, and the technology is also a popular choice for retrofit applications when space is limited or where architectural or aesthetic integrity must be preserved.

PJM is expert in VRF service and installation and can help owners considering installing a variable refrigerant system assess their building's specific needs. For more information on VRF, contact us at 609-496-8696.