INTRODUCING EMERGING TECHNOLOGY

Reliability vs. Innovation:

Facilities teams are going above and beyond just being responsible for function and appearance, they are also the brains behind strategic operations of a building.

This means proactively researching and recommending new equipment or technology to reduce costs and improve performance. Early adoption of innovative practices can pose risks if the technology has not been fully proven. Finding the right balance between the status quo and emerging technologies is particularly important for mission critical facilities. So, how should facilities teams decide when to innovate and when to stick with the tried and true?

Myriad new technologies have been introduced to data centers and other critical facilities, with positive effects. On such innovative technology, Variable Refrigerant Flow (VRF) technology, allows for expandability and heat transfer within the system with reduced compressor load and energy efficiency. As an added bonus, this technology has become more affordable, boosting its ROI.

VRF systems were introduced in Japan nearly 30 years ago, and have gained popularity in Europe and elsewhere while still being relatively new in the United States. In 2012, it was estimated that VRF had 35% market share in China, India, the European Union and Eastern Europe, but only single-digit market penetration in the United States.

One reason that United States has only modestly adopted VRF technology is because there are still risks associated with it. In order to mitigate these risks, new users should proceed with caution and keep the ultimate end-goal—reliability—in mind.

In one installation of a VRF system, the owner need to phase out an existing supply air raised floor cooling system within an occupied building, without the use of hot work permits. Several months after start up, the new VRF unit began to leak at multiple connection points in its metal piping. The system used compression fitting and metals that were lighter and less expensive than traditional copper piping for refrigerant systems, but the metals were susceptible to thermal stress and fatigue failures.

The solution was to change all the piping to similar metals (copper in this case) and specify that all joints be silver soldered. This was chosen over brazing due to lower temperatures thus reducing the risk of damage to the control boards. The client is very happy with final system reliability and reduction in building energy cost.

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Finding the Rewards, Without the Risks

While 20-20 foresight is impossible, there are measures to mitigate the risk of change. Before jumping into a new technology, your facilities partner should help ensure the decision will be effective and not compromise reliability. Before you embrace the big "I" – Innovation – consider three additional "i's" as a litmus test for evaluating and mitigating risk.

INVESTIGATE

Thoroughly research the manufacturer's references, determine where the new technology has been used. Then speak to the end user on the positive and negative results they've seen.

- If feasible, do a site visit to review the installation.
- Ask the manufacturer for a list of failures and warranty repairs they have done for the last year.

INSTALLATION

- Be sure that everyone installing the system is factory and field trained. It is not enough to have one expert in a crew of 10 technicians.

INSURANCE

- Run mathematical test models to understand the mechanics before installation.
- Confirm the spec sheet for the purchase includes a full parts and labor warranty for at least five years.

New technology provides a number of benefits, but additional groundwork is necessary to decide if the application is right for you. Investing in rigorous due diligence will help ensure your technology innovations yield years of trouble-free service.