

MEDIA RELEASE

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Inadequate data center cooling systems heating up the risk of equipment damage

TROY, MICHIGAN— As businesses rely more on IT and data centers become filled with new, more powerful equipment, traditional underfloor air distribution systems may not be able to handle the additional heat that is generated. "Developments in IT equipment have allowed for large numbers of servers and equipment to be installed in smaller spaces. This creates intense areas of heat, which traditional underfloor air distribution systems may not be able to accommodate. To reduce the risk of equipment damage from overheating, a high density cooling system can be added, which may be a more practical solution than trying to create or accommodate an extremely deep plenum for the underfloor air system," says Dennis P. Sczomak, PE, LEED AP, Vice President at Peter Basso Associates, a Michigan-based full-service engineering firm.

High density cooling systems— which use piped refrigerant to cool local hot spots— are being used as a supplement where traditional systems fall short in both new and existing data centers. "Over time, the tendency of most businesses is to use more servers or platforms and to integrate multiple systems, such as telephone and security. This requires more intense equipment that creates additional heat, which frequently demands additional cooling beyond a traditional underfloor air distribution systems," says Sczomak.

To ensure adequate and effective cooling for data centers, Sczomak offers the following advice:

- **Think ahead.** Since most data centers— even small ones— will continue to generate more heat, and demand additional cooling over time, be sure to consider future needs when evaluating the cooling capacity. "If you're designing your data center for 100 watts per square foot, that's probably too low to handle the reasonably expected heat gains in the future," says Sczomak. Assess the existing load and make a projection of the future load to determine if the capacity of the infrastructure will be sufficient.
- **Do your spring cleaning.** As the systems and equipment used in a facility change, it's not uncommon for remnants to be left behind. Make sure the plenum is not cluttered or blocked by unused cables. By getting rid of these materials, you can improve the flow of air and the effectiveness of the cooling system.
- **Make the most of your space.** The layout of equipment impacts how effectively the space is cooled. Organizing servers and equipment into "hot" and "cold" aisles— where the equipment in hot aisles rejects heat into aisles cooled by the system— can help equalize the temperature and allow the system to efficiently deliver cooling to the space.

The processing power of servers and equipment is being delivered to the market in smaller packaging than ever before. In addition, integration of video, security, telephony, and power over Ethernet is resulting in increased network capacity requirements. While these two trends compliment each other to allow existing equipment spaces to serve organizations, they place a greater demand on data center infrastructure. An adequate and reliable cooling system— one that combines underfloor air for a base distribution, high density cooling for localized areas, and an effective organization of the space— will accommodate the heat generated by this heightened demand and reduce the risk of equipment damage from overheating.

Peter Basso Associates is a leading full-service engineering firm skilled in the fields of mechanical and electrical engineering, energy management, lighting design, commissioning, and communication technologies. Headquartered in Troy, Michigan, the firm primarily serves the Corporate/Governmental, K-12 Schools, Healthcare/Laboratory, and Higher Education markets. For further information, contact:

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