MSC TECH

973-884-5000

MSC - THE ONLY TRUE HVAC SERVICE COMPANY - WE FIX IT

NEWSLETTER - JULY 2011

SERVICE CALL

Finding Your Energy Wasters...

When it comes to HVAC systems, the biggest energy hogs are often right under your nose. If you suspect that operating and performance issues are to blame for high utility bills, you'll need to do some detective work to identify the culprits. On a recent call for a client, MSC discovered leaking preheat coil control valves in a number of HVAC air handlers.

These leaks created unnecessary heat, overtaxing the cooling coil and burning excessive energy. We also found reheat control valves that were not seating properly. Some valves were open when they had been commanded closed or were stuck in their last commanded position, resulting in overheated spaces that required additional cooling at great expense. Also, a few packaged air handling unit economizers were found to be inoperable, broken or shut off.

Without this feature, the client wasn't able to take advantage of cooler nighttime temperatures, thus paying higher overall cooling costs.

If you'd like to find out where your energy dollars are being wasted, please call MSC at 973-884-5000.

HVAC SENSORS: The Eyes and Ears of Your System

HVAC systems have a variety of sensors that monitor operating and environmental conditions to maintain efficient working order. Most sensors fall under two main categories – control sensors and safety sensors.

Control Sensors

Basic controls for HVAC systems include temperature, humidity, pressure and flow. It is important that sensors are installed in the proper locations in order to get accurate readings. Temperature transmitters and humidification sensors must be carefully placed based on the properties of the room or building to read true average conditions. If flow sensors are installed with incorrect upstream and downstream diameters, inaccurate readings can result. Improper static pressure sensor placement can result in system performance issues with variable frequency drives.

Safety Sensors

Some sensors serve to protect your systems and building from damage that can occur from high pressure, low temperature (freeze stats), high humidity, overcurrent, and more. Safety sensors and circuits should never be jumped out or bypassed. Though it may sound elementary, it needs mentioning because, in cases where damage occurs, the culprit is often a faulty, bypassed or non-existent sensor. Broken water coils, blown ductwork, and damaged equipment are heavy prices to pay for a malfunctioning sensor.

Once sensors have been properly installed based on the manufacturers' recommendations and the properties of your space, they must be calibrated to ensure accuracy. Sensors should be routinely tested to make sure they are operating properly and within correct ranges. It is important to have tight ranges on variables because these sensors are the eyes and ears for your system and they control everything that functions to serve you.

It is worth the money to invest in quality instruments, which are more accurate and dependable and help avoid costly system failures. Have a seasoned contractor review your system instruments and sequence periodically to make sure you are taking advantage of energy savings wherever possible.

If you are experiencing problems due to improperly located or installed safety or control sensors, or if you have unexplained interruptions in service, call MSC's Harry Hartigan at 973-884-5000, ext. 125.

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THE HISTORY OF REFRIGERATION IN AMERICA

During the last 150 years or so, the development of refrigeration, which gave us the ability to preserve food and cool spaces and substances, has profoundly changed our way of life. Early methods of refrigeration were simplistic, often using harvested ice or snow and crude insulating materials. Foods were stored in cellars, in outdoor boxes in cooler weather, and even underwater, but these methods couldn't prevent rapid spoilage, so the bulk of the average American diet usually consisted of bread and salted meats.

During the first half of the 19th century, as cities grew and economic status of the population improved, there was an increasing demand for fresh food, especially produce. Natural ice became a booming industry. Frederick "Ice King" Tudor, who focused on shipping ice to tropical climates, helped to revolutionize the ice industry by experimenting with insulating materials and building ice houses and shipping methods that kept melting losses to a minimum. Nathaniel Wyeth devised a cheap and efficient method of cutting uniform blocks of ice, speeding handling techniques in storage, transportation and distribution with less waste.

Refrigeration using ice rapidly became cheaper and more accessible. By 1890, there were over 200 commercial ice plants in the U.S., and by 1909 there were 2,000. But as time went on, natural ice sources became harder and harder to find, and ice was often contaminated by pollution and sewage. Fortunately, mechanical refrigeration was already being developed, led by the brewing industry. S. Liebmann's Sons Brewing Company began using an absorption machine in Brooklyn in 1870, and by 1891, nearly every brewery was equipped with refrigerating machines.

The refrigerated railroad car, first patented in 1867, helped to create regional meat and produce hubs. Meats came from Chicago and Kansas City, peaches from Georgia, apples from Washington, citrus from Florida. The meat-packing industry began using mechanical refrigeration, mostly ammonia compression systems, in the early 20th century. Livestock could be brought to market at any time, not just winter, and meat quality vastly improved.

Because early refrigerants difficult to work with and often toxic, the most important advancements in modern refrigeration began when Frigidaire first released CFCs (chlorofluorocarbons) in 1930. These new "safe" agents allowed refrigeration to become pervasive throughout the U.S. Other industries benefited from refrigeration, including metalworking, textile mills, oil refineries, and all types of manufacturers. Hospitality businesses boomed.

The household icebox was a common appliance in the American household by 1884, and with the development of mechanical refrigeration, ice wagons were becoming a thing of the past by WWII. By 1950, more than 80% of farms and more than 90% of urban homes had a refrigerator, effectively changing the American way of life.