The Barn Raiser

Mid-South Engineering Company

Issue No 51 Working Together Third Quarter, 2014

Code Matters

Codes ***do*** matter in the building and industrial plant world…..A lot.

by Karen Griffin, Staff Architect, MSECO Hot Springs

Question:

What is required for an Emergency Action Plan?

Referenced Codes: The International Building Code (IBC), Occupational Safety & Health Administration (OSHA standards 29 CFR 1910.38), NFPA 101 Life Safety Code

The short OSHA **Answer**: If there are more than 10 employees at a facility, a written Emergency Action Plan (EAP) will be required. If there are fewer than 10, the plan may be communicated orally. EVERY building or facility with an EAP saves lives. Nothing in the following list should be a surprise to any employer, but the question is, do any of these items need updating at your facility?

ELEMENTS of a good Emergency Action Plan are:

◊ Procedure for reporting fires and emergencies

◊ Procedure for emergency evacuation with posted maps of exit routes

◊ Procedure for employees who stay behind to continue critical plant operations

◊ Procedure to account for all employees after evacuation

◊ Procedure for performing rescue duties

◊ Listed type and coverage of building fire protection systems including alarm system

◊ Review of plan with: new employees, all employees if plan changes, or change of duties for emergency plans

◊ Drills held at both unexpected and expected times and under varying conditions, with sufficient frequency to familiarize occupants with the drill procedure as a matter of routine.

Did you know?

1. A written record of each drill shall be completed by the person responsible for conducting the drill and maintained in an approved manner (NFPA 101).

2. Required Emergency Plans shall be submitted, reviewed, and updated by the authority having jurisdiction (NFPA 101).

3. When conducting drills, emphasis shall be placed on orderly evacuation rather than on speed (NFPA 101).

4. In some buildings, the International Building Code requires a schematic floor plan detailing the building core, means of egress, fire protection systems, firefighting equipment, and fire department access. This plan shall be located at the fire command center, a room designated for fire department operations. Smaller buildings will locate the fire command center in a convenient location with 24 hour monitoring.

5. Your architect/engineer can make code compliant exit route maps with exiting paths shown, to be posted throughout your plant buildings or facilities

Look for Energy Losses in Commercial Buildings Using Thermal Imaging

By: Dick Angotti, ET
Part 3 of 3

Small, consistent changes can make a big difference in the profitability of any facility. Find problems fast, fix them, and win by realizing the cost savings. Thermal imaging experts suggest that building owners, building managers and/or facilities engineers have the following system in their facilities inspected to identify energy losses:

Steam Heating Systems

Today, steam systems are more common in industrial settings than commercial settings, but some commercial buildings still use them for central heating.

This thermal image is of a steam trap that has failed open allowing steam to go directly back to the condensate return system wasting energy. The steam trap was removed repaired and the problem was corrected.

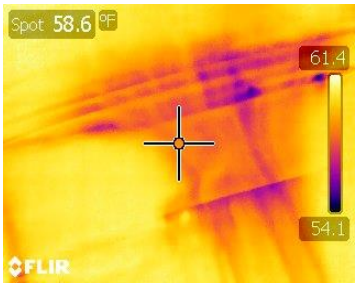
What to scan:

- Steam traps. Check traps using both thermal imaging and ultrasonic testing. Each technology works better that the other for certain traps and trap configurations.
- Radiator coils. Check for obvious steam leaks in the radiators and at all visible pipe and joint connections.
- Steam lines and valves. Look for telltale signs of leaks and blockages and for blow-by at valves that are supposed to be “closed”.
- Condensers. Look for leakage of outside air, which reduces the condenser’s vacuum, thereby decreasing its efficiency.

Anticipated savings: As an example: In a 100-psig-steam system, if a medium-sized trap fails open it will waste about $3,000 per year if not corrected.

HVAC Systems

The heating, ventilation and air conditioning (HVAC) system is usually one of the biggest energy consumers within a facility.



This is a thermal image of an insulated HVAC duct leaking air. The insulation was removed and the duct was repaired and re-sealed then re-insulated correcting the problem.

What to scan:

• Ductwork and registers. Even the highest rated HVAC system wastes energy without a well-sealed duct system. With thermal imaging one can see the thermal pattern of air loss or gain in ducting and also monitor registers to determine whether heating or cooling output is optimal.

• Fans and blowers. These mechanical elements are, of course, motor driven. Mechanical imbalance will manifest itself in overheated bearings and other components. Thermal images of these systems can also identify shaft misalignment in couplings between the motor and fan.

• Electrical connections. Loose or corroded connections increase resistance at the connection point, resulting in increased energy costs.

• Compressors and coils. Regular inspections of the compressors and coils can also help reduce energy costs. A malfunctioning compressor can have a different thermal signature than a properly-operating one. If coils are blocked, or cooling fins are clogged, improper airflow and heat exchange can take place. This can greatly impact system efficiency, and also further reduce component lifespan.

Anticipated savings:

Studies indicate that commercial buildings with constant-air-volume systems often experience energy losses from air leakage of as much as 33 %. Also, studies indicate that air-supply temperature differentials due to conduction losses can be as great as 6 °C (10.8 °F) or more. Considerable savings can be achieved with duct-sealing and insulation remedies depending on specific circumstances.

Conclusion: Thermal imaging on an annual basis will help identify and prevent expensive failures.

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