An infrared inspection program can provide users with a quick return on investment-sometimes paying for the equipment on its first use. Estimates of return on investment generally run from a minimum of 4:1 to as high as 20:1, depending on such factors as the cost of downtime for equipment failure, labor, parts and materials.

Hurdles to program adoption

With such high returns, it would seem an easy matter to sell management on the value of establishing a thermography program and either hiring a contractor or purchasing the equipment and providing the training for an in-house initiative. Unfortunately, the initial investment required still raises eyebrows in many front offices.

Granted, the cost of IR thermography equipment can be substantial (sometimes reaching into the tens of thousands of dollars). But, properly used, it becomes almost insignificant in comparison to the potential savings.

Proper usage is the real rub. An effective program requires high-level education and training of the people involved in it. The best thermography technicians understand not only thermography, but also such associated topics as materials science, physics, thermodynamics, mechanics, electrical systems, thermal insulation, HVAC systems and more. Of course, a thorough knowledge of all safety aspects of the equipment and systems involved is paramount.

Data processing also can be a challenge. In the best of circumstances, thermography data can be integrated with CMMS or EAM software, but this is not always possible-*or necessary*. So long as data can be analyzed in an appropriate database, thermographers can find ways to spot and track trends and learn to predict potential problems.

Building a program

Contrary to what many users might think, buying the equipment should not be the first step in establishing a thermography program. Experts agree that considerable education and training should come first. Only after the appropriate personnel have become knowledgeable and are able to define the program needs should equipment be considered. Other steps advised prior to equipment purchase include:

- Select personnel for the program who will have the time and inclination to

Uses of Infrared Thermography

Infrared thermography can be applied anywhere the knowledge of heat patterns and associated temperatures will provide meaningful data about a process, system, or structure. IR thermography is useful for condition assessment, forensic and accident investigations, and quality assurance inspections.

Using IR thermography to detect incipient failures within electrical systems is well documented. Over the past two decades, the inspection and subsequent repairs of electrical distribution systems have saved companies countless dollars in avoided downtime.

IR thermography continues to be used successfully to inspect building envelopes and roofs, boilers and steam systems, piping systems (including underground piping), refractory systems, and rotating and process equipment.

IR thermography has been used to detect misalignment, over/under lubrication of bearings, and improper tension in belted systems.

(Source: Infraspection Institute)

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