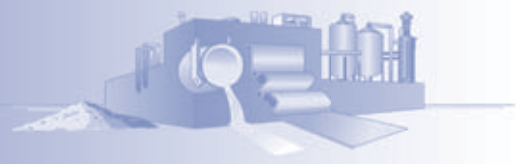

Selecting a Steam Training Provider

Over 45% of all the fuel burned by U.S. manufacturers is consumed to raise steam. Steam is used to heat raw materials and treat semi-finished products. It is also a power source for equipment, as well as for building heat and electricity generation. But steam is not free. It costs approximately $18 billion (1997 dollars) annually to feed the boilers generating the steam. Many manufacturing facilities can recapture some of these dollars through the installation of more efficient steam equipment and processes. A typical industrial facility can realize steam savings of 20% by improving their steam system. If steam system improvements were adopted industry-wide, the benefits would be $4.0 billion in fuel cost reductions and 32 million metric tons of emission reductions.

BestPractices, a program of the U.S. Department of Energy's (DOE) Office of Industrial Technologies (OIT), works with industry to identify plant-wide opportunities for energy savings and process efficiency. Through the implementation of new technologies and systems improvements, companies across the United States are achieving immediate savings results. We invite you to get involved in BestPractices so your company can join the ranks of forward-thinking U.S. industrial manufacturers who are saving energy and money, reducing pollution and emissions, and increasing productivity right now.

The cost-effective operation and maintenance of a steam system requires attention not only to the needs of individual pieces of equipment, but also to the system as a whole. A systems approach analyzes both the supply and demand sides of the system and how they interact, essentially shifting the focus from individual components to total system performance. The systems approach is not always taught in school or learned on the job. In fact, operators are often so focused on the immediate demands of the equipment that they overlook the broader question of how system parameters are affecting the equipment.

One excellent remedy to this problem is properly training staff on steam systems as a whole. A trained workforce is one that can make tangible improvements to a plant's safety, reliability, production, and financial bottom line. We offer the following guidelines for companies to find a steam training company that meets their needs.

Quality training companies and classes possess many of the attributes described below. Not all points are applicable to every training situation.

The Class or Training Should Offer:

- A curriculum covering the following topics:
  - Identify the measurements required to manage boiler efficiency
  - Measure boiler efficiency
  - Estimate the magnitude of specific boiler losses
  - Identify and prioritize areas of potential boiler efficiency improvement
  - Recognize the impacts of fuel selection
  - Characterize the operational impact of backpressure steam turbines
  - Characterize the operational impact of condensing steam turbines
  - Recognize the requirements of an appropriate steam trap management program

- Evaluate the effectiveness of system insulation
- Evaluate the primary economic impact of condensate recovery
- Recognize the economic impact of all aspects of steam system operation

- Pre-test to analyze needs of students; or when on-site, analyze needs with supervisor
- Books, manuals, reference material, handouts, audiovisual material, and other training aids to help students
- Written or verbal feedback, such as exams or exercises which ensure that learning has taken place
- Problems and solutions that are discussed in class
- A specific objective for the class that matches your objective
- Evaluation forms which give students an opportunity to make comments

What to Look for in the Company/Organization

- Instructors that are active in technical associations, conferences, and seminars
- Referrals from your peers
- Instructors possess specific expertise and experience in areas of concern for you and your company
- Selects instructors based on educational credentials, technical expertise, practical experience, and teaching ability
- Has a Better Business Bureau reference
- Meets the specific requirements of your industry
- Can offer open class enrollment programs as well as on-site programs
- Has the requisite insurance coverage for on-site and off-site training
- Offers certifications or continuing education units (CEUs)
- Is an active participant in voluntary programs such as an association, EPA's Energy Star, DOE's BestPractices or other state and local programs.

BestPractices is part of the Industrial Technologies Program, and it supports the Industries of the Future strategy. This strategy helps the country's most energy-intensive industries improve their competitiveness. BestPractices brings together emerging technologies and energy-management best practices to help companies begin improving energy efficiency, environmental performance, and productivity right now.

BestPractices emphasizes plant systems, where significant efficiency improvements and savings can be achieved. Industry gains easy access to near-term and long-term solutions for improving the performance of motor, steam, compressed air, and process heating systems. In addition, the Industrial Assessment Centers provide comprehensive industrial energy evaluations to small- and medium-size manufacturers.

Project Partners:

Alliance to Save Energy

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A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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