

# Boiler Cleaning and Maintenance: Tips for Safety, Efficiency and Compliance

A 2007 boiler explosion at the Salem Harbor generating station in Massachusetts led to the deaths of three workers. The blast was partly blamed on corrosion in a section of the boiler that had not been inspected in at least 10 years. No matter how highly automated our equipment may be, we can't neglect the basics of boiler safety and maintenance.

New York City recently tightened its requirements for boiler inspections, requiring quicker turnaround on repairs. Despite the fines, some boilers still don't get inspected—misunderstanding of regulations, or poor records of previous inspections are often to blame.

Your boiler has automatic controls to prevent malfunction, but you can only rely on them if you maintain them. Scale buildup and internal corrosion can disable essential safety features.

In addition, boilers use a lot of energy—second only to air-conditioning systems. No matter the type of fuel you burn, soot quickly accumulates in boiler firetubes. In just two weeks' time 1/8" of soot can build up, wasting your heating dollars.

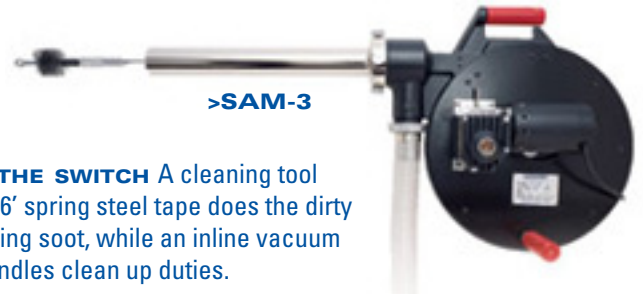
Make sure your boiler maintenance procedures are up to snuff, and avoid the headache of fines, safety risks and increased operating costs.

## >STICK TO YOUR INSPECTION AND MAINTENANCE SCHEDULE.

A qualified technician should inspect all parts of your boiler, at least annually. If your staff is unsure of requirements, have a third party conduct a thorough audit and develop a maintenance plan. Compare your in-house maintenance with this printable checklist from the U.S. Department of Energy: [http://www1.eere.energy.gov/femp/operations\\_maintenance/om\\_blrchecklist.html](http://www1.eere.energy.gov/femp/operations_maintenance/om_blrchecklist.html)

## >DOUBLE-CHECK THAT SAFETY SYSTEMS ARE IN GOOD REPAIR.

An estimated 75 percent of boiler failures



>**JUST FLIP THE SWITCH** A cleaning tool mounted to a 26' spring steel tape does the dirty work of loosening soot, while an inline vacuum attachment handles clean up duties.

are due to low water levels. Regularly test the low-water fuel cutoff and relief valves. Keep the water gauge glass clean so you can visually verify water levels.

>**KEEP DAILY LOGS OF BOILER MEASUREMENTS.** Because most problems develop slowly, a log is the best way to detect significant changes. Keep daily logs on the following: type and amount of fuel used; flue gas temperature; makeup water volume; and steam pressure, temperature, and volume.

>**KEEP AN EYE ON THE STACK-TEMPERATURE GAUGE.** As layers of soot build up, the stack temperature rises. For every 40°F rise in stack temperature, boiler efficiency is reduced by 1%. Increased stack temperatures signal that it's time to clean dirty tubes.

>**VACUUM YOUR FIRETUBES.** Just 1/8" of soot results in a 47% loss of heat transfer in the tubes, and increases fuel consumption by more than 8%. The SAM-3 keeps your system running at optimal efficiency by simultaneously loosening and vacuuming up soot. Clean heavy buildup from larger I.D. tubes with the RAM-4X. Its powerful turbine action eliminates scale and soot deposits, with the option of vacuuming or water flushing to remove the solids.



>**ONE-MAN JOB** Clean any boiler easily with the powerful turbine action of the RAM-4X. Increase your fuel efficiency and extend your boiler's life.

## >CHOOSE THE CORRECT BRUSHES AND SCRAPER TOOLS.

Steel brushes easily loosen soot and light scale. For heavier deposits, choose scraper tools or spring filled brushes. Clean solidly clogged tubes with a drill attachment.

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