

Installations and Maintenance, by Carla L. Romita

The Mann Report, June 2007

The volatile movements of the energy markets continue to be a source of concern for consumers. You may not be able to control the price of fuel oil, but you can take control your energy costs. Technological advances in oil burning equipment have saved consumers billions of dollars and improved the environment by increasing efficiency and reducing emissions. Equipment using vaporizing technologies and high flow atomization burners have reduced emissions. Flame retention burners draw in less air and produce hotter, more efficient combustion.

The industry has also introduced improved distillate fuel that is more efficient and environmentally friendly than fuels of the past. In 1970, fuel oil sulfur content averaged over 1%. Today, the average is .20-.30%. The industry is continually moving to reduce the sulfur content of no. 2 heating oil to .05% over the course of the next few years.

Since energy prices are likely to remain high for the foreseeable future, property managers and building owners need to give serious consideration to installing new, state-of-the-art, cost-efficient heating equipment. If the heating equipment in your building is fifteen years old or older, it probably operates at only 60% efficiency. Today's new oil heat equipment boasts efficiency ratings that can exceed 90%. Apart from unnecessarily high fuel bills, these are strong indicators that your building's equipment may need replacement: (a) uneven heating throughout the building; (b) time lag between firing the boiler and feeling heat; (c) frequent breakdowns and service calls; and (d) noticeable soot or dirt around the burner. If your building is having some of these problems, consider asking your oil dealer to evaluate your heating equipment. Your building may benefit from a new installation. If the rest of your equipment is operating well, you may benefit from a simple upgrade to a new, energy-efficient burner.

Whatever solution you choose, now is the time to plan the project. The time to perform an installation is not in the dead of winter, but in the spring and summer when your system can be shut down without unduly inconveniencing tenants, unit owners, or shareholders. If you postpone the project for another season, you not only risk cold weather breakdowns but you also lose a year of enjoying the benefit of saving money on fuel consumption.

Despite the economic benefits of an equipment upgrade, some buildings may not be in a position to pay for it. Nonetheless, you may still obtain the best performance from the equipment you have by following a rigorous maintenance program. Soot that collects in a boiler during normal operation, acts as an insulator, and is a major reason for inefficient boiler operations. An accumulation of just 1/8th inch of soot in boiler tubes increases fuel consumption by 8.5%. Scaling, caused by soot and condensation on the inside of your boiler, also reduces efficiency. For example, a fifty-tube boiler that has as few as five tubes plugged will suffer a 10% efficiency reduction, forcing the boiler to run longer to maintain the desired temperature.

Preventive maintenance to eliminate soot buildup also reduces the presence of acids and scaling that cause boiler tube corrosion and leaks which are expensive to repair. Professional preventive maintenance extends the useful life of your heating equipment, reduces overall equipment maintenance costs, and prevents service disruptions. An annual boiler cleaning, efficiency test, and overhaul performed on every burner in a building is recommended to keep equipment running well. Don't confuse an overhaul with a boiler cleaning. During an overhaul, the technician will: 1) completely dismantle the burner and clean all of the parts, 2) clean the blower fan and its housing, 3) remove and clean or replace nozzles, 4) remove the electrical heater and clean the elements, 5) clean the ignition assembly, 6) replace electrodes, 7) drain and refill compressor oil, 8) clean compressor vane and check air pressure, 9) grease the bearings, 10) check the oil pump for leaks, 11) check oil pressure, 12) replace the belts on the compressor and oil pump, 13) check all controls for proper operation and leaks and repair or replace them, 14) replace gauges where needed, 15) check flame safety and adjust the high and low firing rate, 16) set the aquastat and pressuretrol. This entire process will take the technicians several hours and can be expensive if not covered under a service contract, but the expense is well worth the gain in efficiency and extension of the useful life of your heating plant.

Boiler tubes should be replaced as soon as leaks are detected. Boiler chambers should be regularly inspected and repaired as necessary. Defective draft regulators should be replaced since excess draft can pull heat through the boiler too quickly and reduce its efficiency. Burner cones, which keep the flame in optimal shape for efficient burning, should also be kept clean of scaling and soot. Professional chemical treatment of boiler water increases the overall life of the boiler by regulating impurities that contribute to corrosion and leaks.