

Boiler Room Care (part 1)
by Harry de Jong

Know your equipment.

Information is available from your local authorized boiler representative. Keep all information in boiler file and train personnel to use the file first when in doubt.

Maintain complete records.

Each individual component should be listed on an index card or computer data base as to model, serial number and date of installation. Get replacement part numbers from your local authorized boiler representative.

Establish a regular boiler inspection schedule.

Include daily, weekly, monthly, semi-annual and annual inspections or activities.

Establish and use boiler log sheets.

Log sheets should be tailored to your equipment. Review of log sheets will help establish a planned maintenance program.

Establish and keep written operating procedures updated.

The ideal time to originate these procedures is when the equipment is placed in use. A detailed start-up procedure is essential in standardizing the boiler room routine.

Good housekeeping, a must.

Housekeeping is the one unalterable truth as to the quality of boiler room maintenance. Keep electrical equipment clean. The most common cause of nuisance electrical control problems is failure to maintain the equipment properly.

Keep fresh air supply adequate.

Proper combustion and burner operation require adequate air. Filters must be kept clean. In severe winter areas it may be necessary to heat the room to an acceptable ambient temperature.

Keep accurate fuel records.

A system of recording fuel consumption can keep you informed of any unusual fuel demands, enabling you to spot a problem or a waste before it gets out of hand.

Safety - Safety - Safety.

When a boiler is taken offline, follow good safety practices such as: disconnect all power supplies and lock switches in the off position. When multiple boilers are connected to a common header, establish routine procedure of locking the header valve on any unit that is down for maintenance. Close any flue gas outlet dampers, etc...

BOILER ROOM AIR SUPPLY

Size (area) and location of air supply openings in boiler room.

- Two (2) permanent air supply openings in the outer walls of the boiler room are recommended. Locate (1) at each end of the boiler room, preferably below a height of 7 feet, thus allowing air to

sweep the length of the boiler. - Air supply openings can be louvered for weather protection, but they should not be covered with fine mesh wire. Fine mesh wire has poor air flow qualities and is subject to clogging by dust or dirt. A vent fan in the boiler room is not recommended as it could create a slight vacuum under certain conditions and cause variations in the quantity of combustion air, thus resulting in unsatisfactory burner performance. - Under no condition should the total area of the air supply openings be less than (1) square foot. Size the openings by using the equation:

Area (Sq. Ft.) = CFM (cubic ft./min.)
FPM (ft./min.)

Amount of air required (CFM).

- Combustion air - Maximum Bhp x 8 CFM/Bhp.
- Ventilation air - Maximum Bhp x 2 CFM/Bhp.
- Or - a total of 10 CFM/Bhp - up to 1000 feet elevation. Add 3 % more per 1000 feet of added elevation.

Acceptable air velocity in boiler room (FPM).

- From floor to (7) foot height - 250 FPM.
- Above (7) foot height - 500 FPM
- Duct from air supply to boiler - 1000 FPM

Example:

Determine the area of the boiler room air supply openings for (1) 300 hp boiler at 800 feet altitude. The openings are to be 5 feet above floor level.

1. Air required: $300 \times 10 = 3000$ CFM
2. Air velocity: Up to 7 feet = 250 CFM
3. Area required: $\text{Area} = \text{CFM}/\text{FPM} = 3000/250 = 12$ Sq. Ft total
4. Area/Opening: $12 / 2 = 6$ Sq. Ft./ Opening (2 required)

Note: Consult local codes which may supersede requirements.

Above information was provided by Harry de Jong of Canadian Boiler Industries Ltd.

First published in the BOA Magazine, December 1996