

THE SCHOOL BOILER

Many schools have a boiler to provide space and water heating. Given the greater sophistication and safety concerns regarding these systems, what you can do will be limited and you will need help. Take advantage of your school's boiler operator to learn about the system and keep an eye open for recommendations you can suggest that may save. In order to determine the efficiency and operation of the school boiler several measures must be taken which include an evaluation of the burn efficiency and smokestack temperature readings. In this part of the energy audit your team is going to need the expertise of the person maintaining the boiler to answer a questioner. From the answers the person submits, you should be able to grasp a good perspective of the boiler system.



In addition to the questioner, if possible, contact someone to arrange for a guided tour of the boiler room by custodial staff. In the tour find out who is responsible for maintaining the boiler, what type fuel it uses, and when it was last inspected. Review the energy data that you collected in earlier in terms of how much and when fuel is being used. Are there any surprises? Ask if the school has any information regarding boiler inspections and if possible review this information to be used in your final report and recommendations.

Ask and review the time periods when the school's boiler is operated. Are there periods such as winter, spring, and summer breaks when it could be completely turned off or down? Is it? During long breaks, some school buildings are being operated on the same schedule as if they were being used! Significant savings are possible simply by turning off heating, lighting and other energy using systems which are not needed at a certain time.





BUILDING AUDIT CHALLENGE – BOILER ROOM QUESTIONER (STEP 7)

The following items should be asked to the boiler inspector. You may want to review why these are important after the inspection has been completed.



Equipment and Information Needed:

- 1) Questioner answered by the person who is in charge of maintaining the school boiler.



Outcome Required:

- 1) Well answered Boiler Room questioner that will allow your audit team to make some possible suggestions that could save the school energy and money.
- 2) An easy to read display, chart or set-up of this information gathered.

Review the Questions below, what other do you think we can add?

Boiler Room Questioner

1. What exactly are the boilers used for?
2. What kind of boiler or what is the exact name of the type of boiler used at the school?
3. What is the size of the boiler?
4. What type of fuel is used to run the boilers?
5. How old are the boilers?
6. How much does a boiler like the one used in this school cost?
7. What type of schedule are the boilers on? Do they run the same amount during different heating/ cooling seasons/ school vacations, etc?

We are not boiler experts, but in doing research, we found the following maintenance is supposed to be done on a boiler. Can you let us know if these items are being done on this schedule, and what is the purpose of doing each check?

Daily Requirements:

- Check temperature of exhaust gasses
- Check the steam pressure
- Check for unstable water level
- Check the burner
- Check motors and auxiliary equipment
- Check blowdown
- Keep a daily log, pressure, temperature of room, stack, water

Weekly Requirements:

- Check exhaust gas composition and temperature
- Check relief valve
- Check water level control
- Check pilot and burner assemblies
- Check boiler operating characteristics

Monthly Requirements:

- Check blowdown and water treatment procedures
- Exhaust gases
- Combustion air supply - keep air supply openings free of obstructions
- Check fuel system
- Check belts and packing glands
- Check for air leaks
- Inspect boiler room for cleanliness
- Inspect linkages for tightness
- Observe the fire when unit shuts down
- Inspect all boiler insulation, refractory, brickwork, and boiler casing for hot spots and air leaks.

Source: Northwest Natural Gas Company Commercial Conservation Checklist.

Thank the person for their time to fill out the questioner. 😊