

FUELS SAFETY BRANCH
INFORMATION BULLETIN
July 1994

Guidelines for Maintenance and Inspection
Programs for Natural Gas and Propane
Appliances and their Fuel Features
In Schools

The Ontario Gas Utilization Code states that the owner of every building* where a natural gas appliance is installed shall ensure that:

- o the appliance and its fuel features** are maintained in accordance with the manufacturer's recommended maintenance procedures.
- o an evaluation of the maintenance procedures, referred to above, is carried out at least once every ten years and where necessary new or upgraded procedures are established.
- o an inspection of the appliance and its fuel features is carried out by a properly certified person at least once every ten years to ensure that the appliance and its fuel features are in safe operating condition and that the installation is in compliance with the Energy Act and Gas Utilization Code.
- o a record is maintained for each inspection until the next inspection.

* **For definition purposes in the Codes, a school is considered to be "a building other than".**

** **Fuel features as defined in the code means the piping, venting, manual valves, automatic valves or other related devices required for the safe operation of an appliance.**

The Propane Storage Handling and Utilization Code requires a similar maintenance and inspection program under Section 4(2) O/Reg 250/94. In this case the responsibility to carry out the inspection lies with the propane supplier.

The following guidelines ***recommend*** more frequent inspections and outline points of particular concern for various parts of the installation in schools. These suggestions are based on the results of the extensive surveys conducted by all School boards in 1993.

These guidelines are not a handbook and the exercise of competent judgement is a necessary requirement to be employed concurrently with their use. It is not the intent of these guidelines to supersede the applicable requirements of the Ontario Gas Utilization Code nor the Ontario Propane Storage, Handling and Utilization Code, and any other applicable codes and regulations.

BOILERS AND ROOF- TOP UNITS

Boilers should be inspected annually. Roof-top units should be inspected at least once every three years. Inspection to include:

Appliances

- o record make, model, serial numbers and approvals.
- o clean and inspect integrity of heat exchanger.
- o check for proper installation and operation of all safety and operating controls.
- o check clearances to combustibles and for serviceability.
- o check supply of combustion and ventilation air.
- o visually inspect flame characteristics.
- o conduct flue gas analysis tests (optional).
- o check for proper installation and operation of all shut off valves.
- o check for proper regulator vent and relief valve piping and terminations.
- o check that explosion relief mechanisms are free to operate (where equipped).

Chimney or Vent

- o ensure chimney or vent is in good operating condition and is clear and unobstructed.
- o check for properly lined chimney.
- o check vent termination clearances.

Vent Connectors

- o check for signs of corrosion and spillage at the draft hood.
- o ensure connector is proper material.
- o ensure connector is properly sized, supported and graded with no dips or sags.
- o check for clearances to combustibles.

Housekeeping

- check for potential fire hazards such as storage of gasoline, paint thinners and other combustible material (i.e. dirt, lint) near gas appliances.

OTHER APPLIANCES

Water heaters, ranges, etc., shall be inspected at least once every ten years as per code Requirements.

Inspection should include all applicable items listed under Boilers and Roof Top Units.

SCIENCE LABS, SHOPS AND OTHER CLASSROOMS WITH GAS PIPING

It is recommended that all piping and tubing systems in this categories be inspected at least once every year .

- o visually inspect piping or tubing for proper installation, materials and condition. Cover plates over troughs to be removed. Prohibited materials include: galvanized piping and fittings; soft solder joints in tubing; white teflon tape; valves other than of the plug, ball or eccentric type.
- o check for corrosion and replace if deteriorated to 50% of original wall thickness.
- o ensure that piping or tubing is not located where corrosive chemicals or atmospheres exist.
- o check for proper supports on piping or tubing.
- o check for piping or tubing in direct contact with masonry or cement and take appropriate action, i.e. piping/tubing encased in cement shall be removed from service; piping/tubing in contact with masonry or cement where it passes through or inside a block wall shall be protected from contact with masonry / cement.

- o check for proper installation, accessibility, identification and operation of all shut off valves. Note: Main shut-offs at teacher's location shall be provided with an installed handle and the location clearly marked with an enamelled metal, substantial fibre or other permanent tag, so that the piping system it controls can be readily identified. It is further recommended that where a keyed solenoid valve is used that a extra key and a manual shut off be readily available.
- o a leak test should be performed. Leak detection procedures may include dial tests, pressure tests, liquid leak detection solution and leak detection devices such as sensitive hydrocarbon detectors or any combination of the foregoing.
- o any piping systems no longer in use shall be disconnected, purged and either plugged or capped.

OTHER PIPING OR TUBING SYSTEMS

It is recommended that all other piping or tubing systems be inspected at least once every ten years as per code requirements except that all manual shut off valves be operated (and lubricated if applicable) at least once every three years or as recommended by the manufacturers.

Inspection should include all items listed under Science Labs, Shops and Other Classrooms as well as the following:

- o check for corrosion on all above ground exterior piping. Replace if deteriorated to 50% original thickness and paint or coat all exterior piping.
- o ensure that all metallic piping or tubing laid underground downstream of the meter is protected against corrosion. A borehole leak detection survey is also recommended. Check for insulated fittings between piping at meter and building lines if underground gas lines are located downstream of meter. Existing unprotected steel underground lines should be visually inspected to determine extent of corrosion, prior to installing an anode. Corrosion control records should be maintained and a survey frequency of once every 3 years is recommended by the utilities. Note: There shall be no underground piping under the building.
- o check for proper supports on piping and tubing. Roof top piping and supports shall allow for adequate expansion, contraction and flexible support.
- o check for proper identification of piping and tubing.

RECORDS

The Natural Gas Code requires that every owner maintain a record of the maintenance and inspection program until the next inspection and forward a copy to the distributor. A record of the inspection conducted by the propane supplier shall be kept by the owner until the next

inspection. The Fuels Safety Branch may audit the records at any time but does not receive copies.

Attached are two examples of checklist style records which comply with code requirements. It is not required that you employ these particular formats but it is required that a record is kept.

Piping diagrams should be updated after each inspection with a copy available at each school.

CORRECTIVE ACTION REQUIRED

Where an immediate hazard exists the appliance and/or piping system shall have the supply of gas turned off. The distributor shall be notified as per code requirements.

Where a code infraction * is identified but no immediate hazards exists, the distributor shall be notified as per code requirements.

Correct replace or repair improperly installed, leaking, corroded or damaged appliances and their fuel features. Make repairs or replacement according to the current codes.

* i.e. a contravention of the applicable Act, regulation or code as it read when the appliance or work was installed.

If you have any questions, please contact one of the undersigned Fuels Safety Inspectors.

Yours sincerely,

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**Fuel Safety Inspectors
School Gas Piping Project Co-ordinators**