

GUIDANCE NOTE: GU14

ENCLOSED TYPE OF GAS-FIRED MEAT ROASTER



August 2007

Issue 2

1. Foreword and Scope

- 1.1.** This guidance note outlines the minimum safety standards on gas supply, installation and maintenance of enclosed type of gas-fired meat roaster to be followed by Registered Gas Contractors and owners/operators of the roasters in food workshops and restaurants.
- 1.2.** This guidance note should not be regarded as exhaustive. It is not intended to relieve persons from undertaking the work of their statutory responsibilities in accordance with the safety legislation.
- 1.3.** This guidance note does not purport to address all of the safety concerns, if any, associated with the safety requirements therein. It is the responsibility of the personnel in the gas industry and catering trade owners/operators to conduct safety and health risks assessment. They should determine the applicability of relevant regulatory requirements and establish the appropriate safety and health practices prior to the use of the guidance note.
- 1.4.** All the gas installations shall comply with the Gas Safety Ordinance (Chapter 51). The guidance notes must be read in conjunction with the relevant manufacturer's instructions and shall not supersede such instructions unless the latter conflict with statutory provisions. Attention is also drawn to the current edition of the relevant regulations of the Laws of Hong Kong, for example:
 - a. The Electricity Ordinance (Cap. 406);
 - b. Fire Services Ordinance (Cap. 95).
 - c. Factory and Industrial Undertakings Ordinance (Cap. 59).
- 1.5.** The registered gas contractor shall make reference to the following standards, code of practices or guidelines in relation to gas installations:
 - a. Code of Practice GU06: LPG Installations for Catering Purposes in Commercial Premises;
 - b. Code of Practice GU09, Part 4: Low Pressure Regulators for Supplying Gas from LPG Cylinders Having less than 40 Litres Water Capacity;
 - c. Operating Procedures issued by the Hong Kong & China Gas Company Limited;
 - d. Codes of Practice for Hong Kong LPG Industry;
 - e. Code of Practice for Minimum Fire Services Installations and Equipment and Inspection;
 - f. Hong Kong SAR Government Code of Practice for the Electricity (Wiring) Regulations;

2. Gas Supply and Installation Requirement on Enclosed Type of Gas-fired Meat Roaster

- 2.1. Gas supply requirements on all town gas fired meat roasters shall be carried out in accordance with the latest edition of Operating Procedures HKCG/SER/OP8 issued by the Hong Kong and China Gas Company Limited.
- 2.2. Gas supply requirements on all liquefied petroleum gas (LPG) fired meat roasters shall be carried out in accordance with Code of Practice GU06: LPG Installations for Catering Purposes in Commercial Premises.
- 2.3. A schematic diagram showing the basic gas supply components of a gas-fired enclosed type of meat roaster is shown in Appendix 1.
- 2.4. The installation and commissioning requirements of meat roasters should strictly follow those of the technical manuals provided (if any) by the manufacturer of the meat roaster.
- 2.5. The installation and commissioning of all non-domestic gas installation work including the meat roaster shall only be undertaken by Registered Gas Installers (hereafter abbreviated as RGI) having a Classes 6 or 7 registration. The registered gas installer shall be employed by a Registered Gas Contractor (hereafter abbreviated as RGC) or he/she shall be a registered gas contractor. The maintenance of the gas installation work shall be carried out by registered gas installers having a Classes 7 registration.

3. Maintenance and Inspection Requirement on Enclosed Type of Gas-fired Meat Roaster

- 3.1. The owner of the meat roaster shall employ a Registered Gas Contractor to conduct regular maintenance, including servicing, cleaning and testing of the following items at least once every year.
- 3.2. The yearly maintenance record shall be kept by the owner/operator for a period of at least two consecutive years. A sample of the maintenance record is attached in Appendix 2.
- 3.3. All meat roasters shall be maintained and serviced according to the written instructions of the meat roaster manufacturer. If there is no specific requirement specified by the roaster manufacturer or the recommended instruction by the manufacturer is not informative, the Registered Gas Contractors and owners/operators of the roasters shall follow the minimum maintenance requirements as stipulated in this guidance note. A typical enclosed type of gas-fired meat roaster is shown in Figure 1.

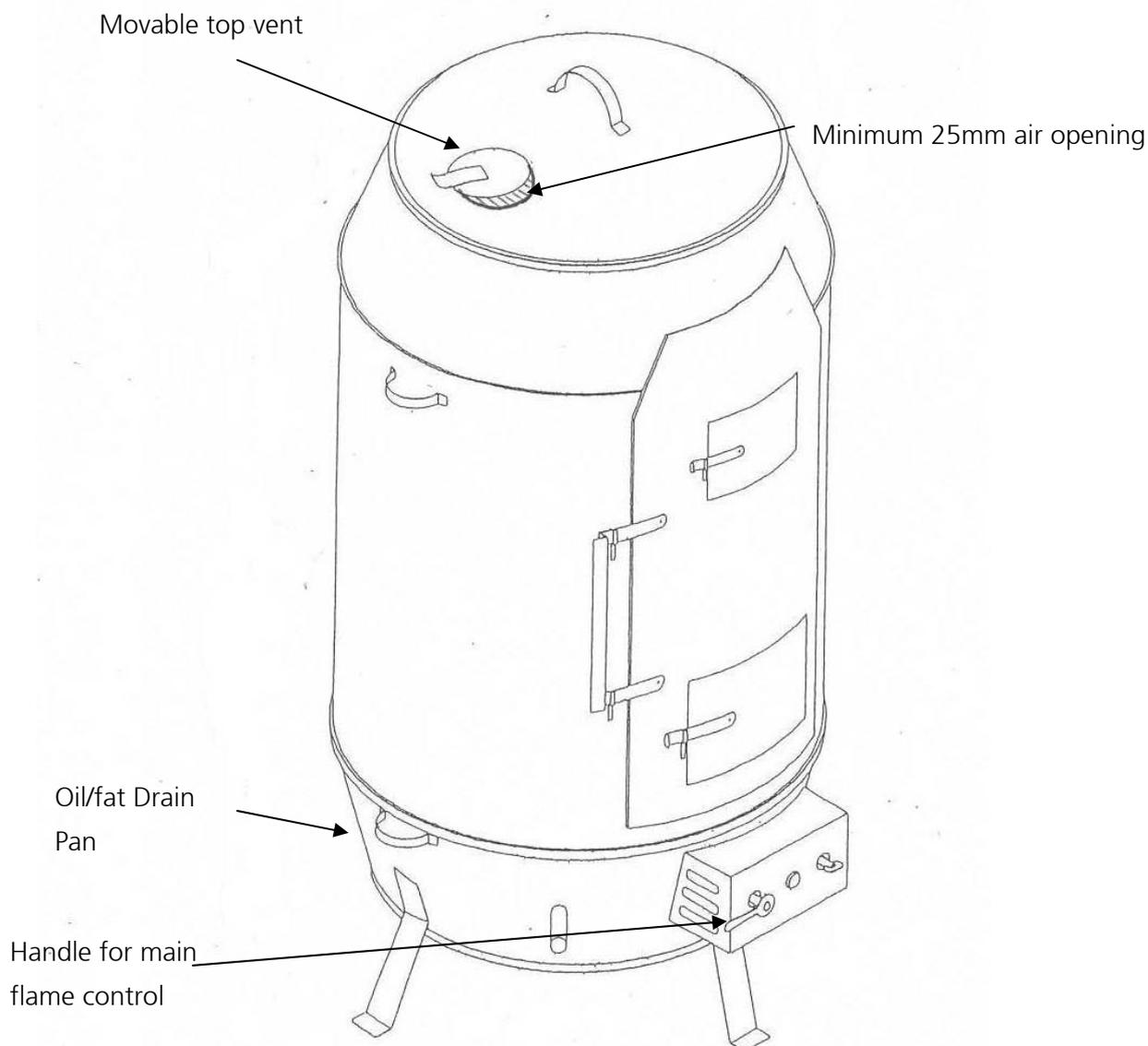


Figure 1 – Typical enclosed type of gas-fired meat roaster

3.3.1. Pilot burner

- a. Pilot burner, especially the bar type pilot burner, shall be cleaned and maintained regularly in order to ensure all gas supply holes are not blocked by meat oil/fat, food dressing, dirt, etc.
- b. It is preferable to use pilot burner with similar height as that of the flame failure device. Bar type pilot burner longer than the FFD by 20mm is not recommended to be used.
- c. It is not recommended to use hard metallic brush to clean the pilot burner, which may potentially damage the surface of the pilot burner. If the pilot burner is damaged, replacement and/or repair must be made by a RGI before use.

3.3.2. Flame failure device (FFD)

- a. FFD shall be installed and function properly for all meat roasters.
- b. The FFD shall be installed at a location where the FFD can cut off the gas supply to the main burner within 75 seconds after the pilot flame has been extinguished.
- c. No brick stone or the like shall be placed close to the FFD, which may affect or delay the normal function of the FFD. All brick stone or similar material must be properly held by a holder installed above the main burner.
- d. During the yearly maintenance, the RGI shall clean and test the FFD to prove it can function properly.
- e. It is not recommended to use hard metallic brush to clean the FFD, which may damage the FFD. If the FFD is damaged, replacement and/or repair must be made by a Registered Gas Contractor before use.

3.3.3. Holder for brick stone or similar material above main burner

- a. As mentioned in 3.1.2, no brick stone or similar material shall be placed around the FFD, which may affect or delay the normal function of the FFD. A holder must be provided for every meat roaster to hold the brick stone or the like above the main burner (see Figure 2).

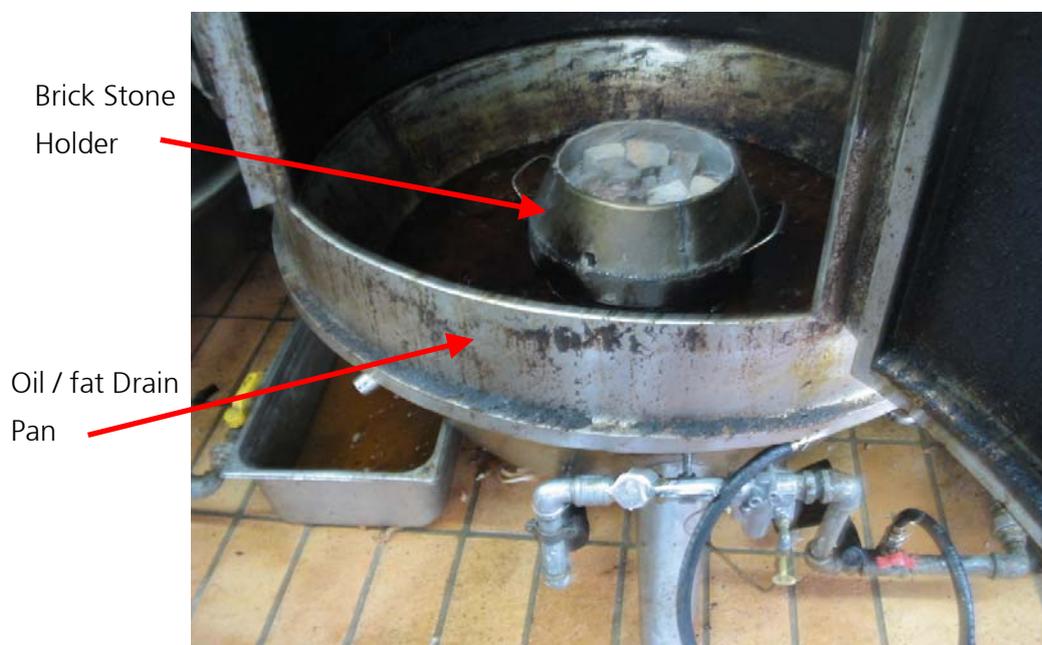


Figure 2 – A brick stone holder inside a gas-fired meat roaster

- b. The holder shall also serve as the shield to eliminate dropping meat oil/fat onto the pilot burner, FFD and main burner during roasting process.
- c. During the yearly maintenance, the RGI shall clean and locate the holder with associated brick stone or the like to ensure the FFD and the burners can function and be shielded properly.

3.3.4. Main burner

Main burner shall be cleaned regularly in order to ensure all gas supply holes are not blocked by meat oil/fat, food dressing, dirt, etc. The owner shall engage RGI (employed by RGC) to carry out annual maintenance work at least once per year.

3.3.5. Ignition mechanism

- a. It is preferable to use electronic ignition for gas ignition process. However, ignition rod is also acceptable for ignition of the pilot burner.
- b. No other improper means such as ignition by a cigarette lighter, matches, burning paper, etc. is allowed.
- c. The ignition rod and its flexible tubing shall be cleaned and maintained regularly to ensure it can function properly.
- d. The maximum length of the flexible tubing shall not exceed 1 metre.

3.3.6. Handle of main flame control valve

- a. Handle of main flame control shall be provided for controlling the main burner flame. The handle shall not be replaced by other kind of device.
- b. During the yearly maintenance, the RGI shall check and replace all missing, torn and worn handle.

3.3.7. Emergency shut off main valve for roaster

- a. An emergency shut off main valve (see Figure 3) with label shall be installed for each roaster close to the main gas control valve in order to shut off the gas supply quickly during emergency situation.

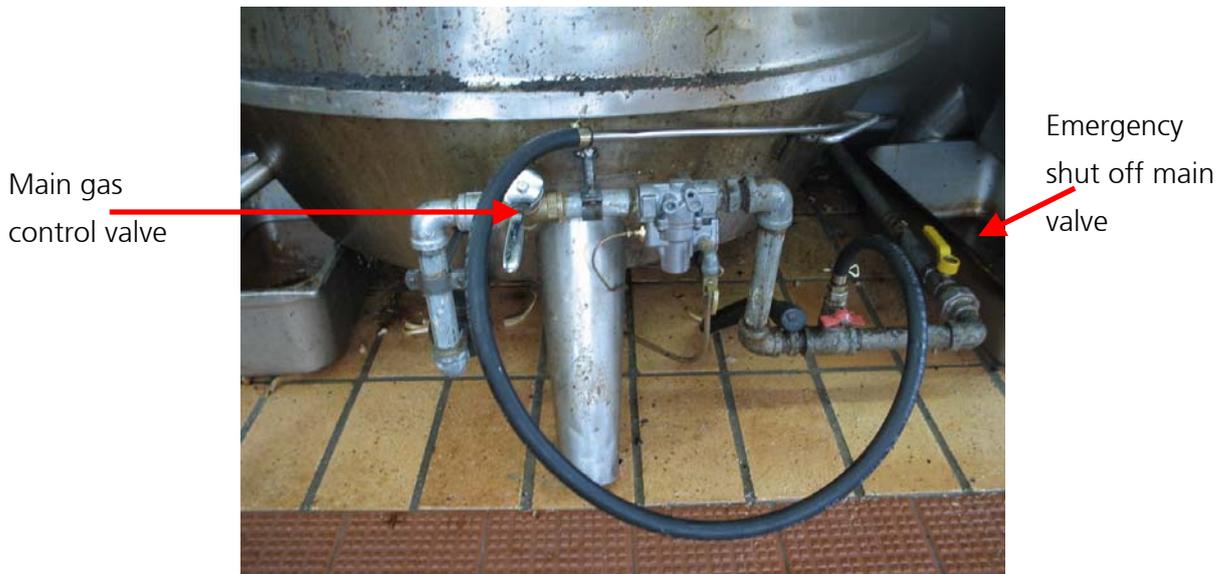


Figure 3 – Installation of emergency shut off main valve

3.3.8. Movable top vent of roaster

- a. Movable top opening vent of the roaster shall always be in “open” position for effectively flue exhaust, or fuel gas if under gas leakage condition.
- b. During the maintenance, the movable top vent shall be checked whether it is easy to move.
- c. The movable vent shall have a fixed air gap for exhausting combustible product during roasting process. A minimum air gap of 25mm shall be maintained at all time. (See Figure 4)

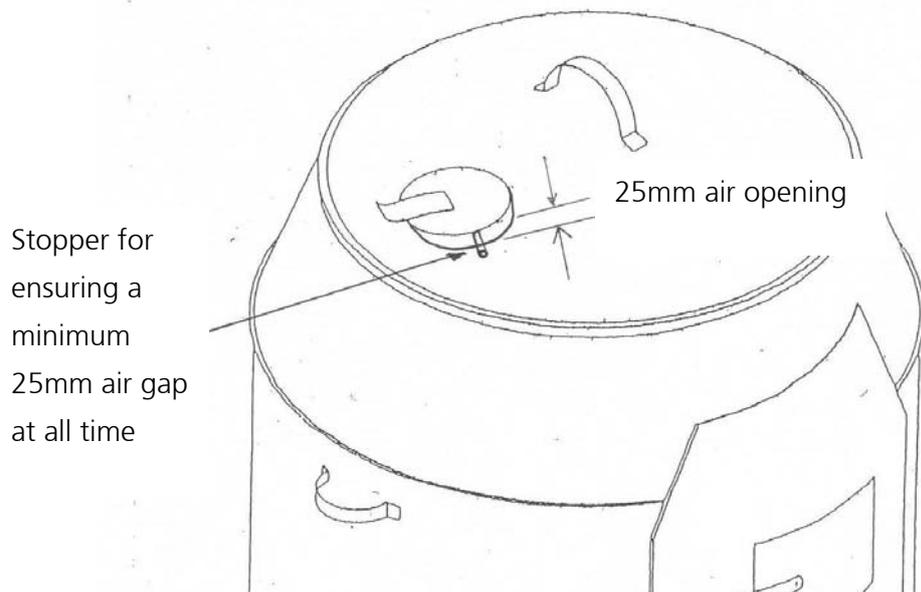


Figure 4 – Minimum air gap to be maintained at a movable top vent

3.3.9. Oil / fat drain pan

- a. Oil/fat drain pan shall be cleaned by owner / operator of the meat roaster regularly.
- b. During the yearly maintenance, the RGI shall check any leakage of the oil/fat drain pan and any blockage at the drain pipe and overflow pipe of the pan.
- c. The owner/operator shall be responsible to top up the water level up to the overflow pipe outlet at all time.

3.3.10. Interior of the meat roaster

- a. Interior of the meat roaster shall be clean periodically by owner / operator of the meat roaster.
- b. During the yearly maintenance, the RGI shall check any damage of the meat roaster and recommend the owner/operator to take necessary repairing work.

3.3.11. Exhaust system for the meat roaster.

- a. An exhaust system shall be provided for extraction of flue gas produced during roasting process.
- b. It is preferable to have an interlocking system which will automatically start up while gas is supplied to the meat roaster. If interlocking system is not provided, the owner/operator shall ensure the exhaust system is always turned on during the roasting process.
- c. During the yearly maintenance, the owner/operator shall ensure the exhaust system is clean and functions properly.

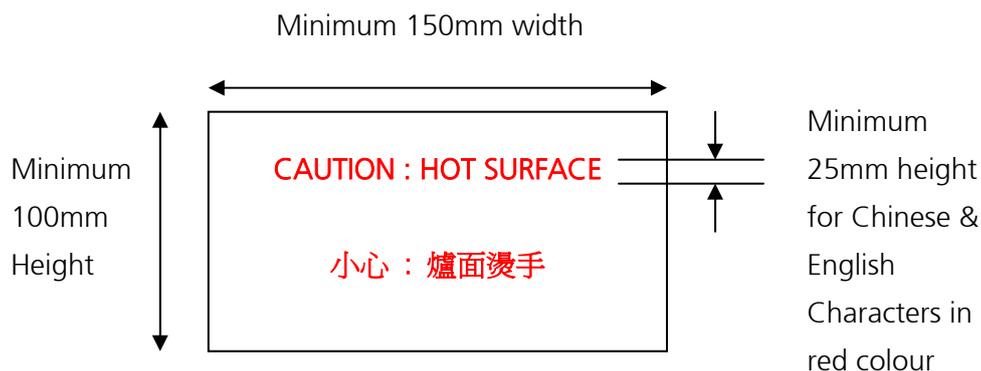
3.3.12. Ventilation requirement for gas-fired meat roaster

- a. In accordance with Regulation 23 of the Gas Safety (Installation and Use) Regulations, Cap. 51, a gas-fired meat roaster shall be installed in a location with adequate permanent ventilation for complete combustion of gas, with proper flue for conveying the products of combustion to the outside air, and to maintain the ambient temperature of the immediate surrounding within safe limits under normal operating conditions.
- b. The quality of air supply shall not be contaminated with combustion products, or contain chemical or inflammable vapour which could affect combustion.

- c. The air supply to the gas-fired meat oven shall be in accordance with the manufacturer's instructions and in the absence of, air supply shall be provided with reference to this guidance note as a minimum requirement.
- d. For room ventilation (i.e. ventilation communicating directly with outside air) condition, the minimum free air vent area (i.e. a permanent air vent without obstruction) for each roaster with heat input up to 50kW shall be 5 cm²/kW.
- e. For compartment ventilation (i.e. ventilation not communicating directly with outside air) condition, the minimum free air vent area (i.e. a permanent air vent without obstruction) for each roaster with heat input up to 50kW shall be 10 cm²/kW.
- f. For workshop with mechanical ventilation, the minimum recommended supply air quantity of the mechanical ventilation system shall be designed to maintain 15 air changes per hour.

3.3.13. Caution label for meat roaster

As the surface of the meat roaster during roasting is very hot, it is preferable to use double skin steel sheet with thermal insulation for the meat roaster construction. For meat roaster with single layer sheet steel construction, a caution label made of sheet steel with the following recommended wording and dimension shall be permanently fixed by mechanical means at a conspicuous location on the roaster. All wordings on the label shall be engraved in red colour instead of surface painting.



3.4. Emergency procedure for handling gas leak

3.4.1. If you smell gas or suspect there is a gas leak, the following emergency procedures shall be followed

- a. To shut off the central emergency shut off main valve or the faulty gas appliance (if known) emergency shut off main valve.

- b. To open all windows and doors to maintain good ventilation inside the premises.
- c. To extinguish any naked flames and do not operate electrical switches such as lighting switch, ventilation system ON/OFF switch, telephone or mobile phone.
- d. Outside the vicinity, call 999 if consider necessary (such as uncontrollable gas leak) and / or contact the responsible RGC for repairing work. The RGC name and contact telephone number shall be clearly displayed in the emergency procedure as specified in Clause 3.4.2.

3.4.2 A sample notice on emergency procedure is attached in Appendix 3. The emergency procedure shall be properly framed and displayed conspicuously at a location next to the roaster(s).

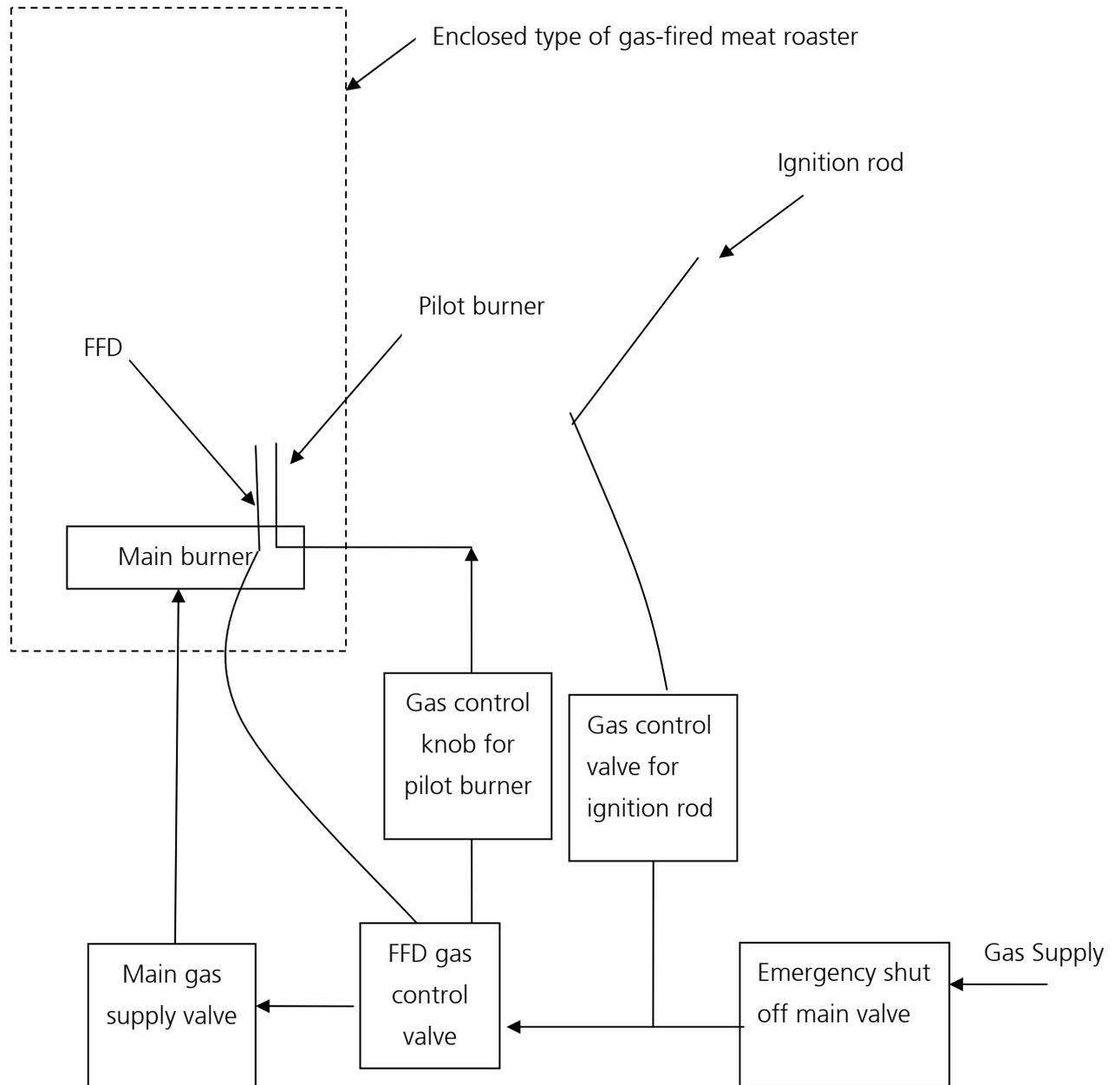
4. Housekeeping requirement of an owner/operator

- 4.1.** Owner / operator shall regularly clean the meat roaster by using a soft cloth with mild detergent to wipe the stainless steel components.
- 4.2.** Owner / operator shall wash and clean the brick stone holder and the brick stone or similar material inside the roaster once a week. Besides, the owner/operator shall be responsible to locate brick stone or the like evenly over the brick stone holder, so that the burners and FFD are properly shielded off from the dripping meat oil/fat.
- 4.3.** Owner / operator shall drain the water with oil and grease inside the oil drain pan regularly. After cleaning up the drain pan, clean water shall be poured and maintained at the level up to overflow pipe outlet. The owner/operator shall ensure overflow pipe and drain pipe are not blocked by grease, fat, dirt, etc.
- 4.4.** Owner / operator shall regularly clean the exhaust system and regularly replace chemical/detergent for hydro-vent type exhaust so as to ensure the exhaust system and interlocking system (if applicable) for gas-fired meat roaster can function properly.

5. Training

- 5.1.** The owner shall provide necessary operation, cleaning and safety precaution trainings of the gas-fired meat roaster to their operators who involve in the operation of the roaster.

Appendix 1 - A Schematic Diagram Showing Gas Supply of an Enclosed Type of Gas-fired Meat Roaster



Appendix 3 - A sample notice emergency procedures for gas-fired meat roaster

Emergency Procedures for Gas-fired Meat Roaster

1. To shut off the emergency shut off main valve of the faulty gas appliance.
2. To open all windows and doors to maintain good ventilation inside the premises.
3. To extinguish any naked flames and do not operate electrical switches such as lighting switch, ventilation system ON/OFF switch, telephone or mobile phone.
4. Leave the gas leak area, then call 999 if consider necessary (such as uncontrollable gas leak) and / or contact the responsible RGC for repairing work.

RGC Name:_____

Telephone No._____