



**Kingdom of Saudi Arabia**  
Ministry of Interior  
General Directorate of Civil Defense

# Regulation of Safety Conditions in Bakeries

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# Chapter 1

1<sup>st</sup>: **Definitions:** The terminologies in this Regulation mean:

## 1. **Bakeries:**

The places that prepare bread and pastries of all types and shapes, whether as a standalone, attached to other business, privately or publicly owned.

## 2. **The Law:**

Civil Defense Law issued by the Royal Decree No. 10 and dated 10/5/1406 H and all other relevant regulations.

## 3. **Regulation of Inspection, forfeiture, investigation, and penalties:**

The Regulation issued by HRH, the Minister of Interior, and the President of the Civil Defense Council to determine the procedures of inspection, forfeiture, and investigation of violations and misuses related to civil defense works and the penalties imposed on them.

## 4. **Civil Defense Representative:**

The authorized person or persons by the General Directorate of Civil Defense, or one of its centers to carry out inspection, forfeiture, and investigation of violations as per the rules and procedures specified in the relevant Regulation, to ensure the safety of the building, safety equipment, and tools, and to impose the penalty stipulated.

## 5. **The relevant authorities:**

The Ministry of Interior, the General Directorate of Civil Defense, and other public authorities involved in the facility's license (the bakery) and business.

## 6. **Safety Official:**

In private bakeries, the owner, manager, or renter of the bakery are responsible in solidarity with the system and regulations. In government

bakeries, the employee or contractor, if available, is accountable for safety or the facility's manager, which the bakery is within it. The manager of the facility will be relieved from responsibility if maintenance, repair, or closing operations are outside his jurisdiction, and he has submitted a detailed report on the action to be taken and the causes and problems that may result from the delay in bringing this to the higher management, which in this case may be responsible for any accidents or difficulties.

## **7. Saudi specifications:**

- a) Saudi Standards, issued by the Saudi Standards, Metrology, and Quality Organization, SASO.
- b) International Standards: in the absence of Saudi Standards, the United States of America or European Standards shall be considered. If the equipment or material is manufactured in other countries (other than US or EU countries), In that case the specifications must be confirmed by the manufactured countries' relevant authorities. A document must be submitted to prove the availability of all safety rules in equipment or material used in all cases.

**2<sup>nd</sup>** The licensee shall not be permitted to establish any new bakery, renew, renovate, or expand the existent until he submits a technical study prepared by one of the technical offices specializing in safety, industrial security, fire, and alarm works and approved by the Civil Defense. This study explains the extent of compliance with the rules mentioned in this Regulation and the existing businesses will be allowed a period from six months to one year from the time of issuing this Regulation based on the size and capacity of the bakery to apply the requirements and instructions stated in this Regulation. The Director-General of Civil Defense may, as he deems appropriate, extend the granted period for another similar. The relevant body of municipalities shall consider granting a license or renewing it as per this Regulation.



**3<sup>rd</sup>:** The office that prepared the study mentioned above must answer to the Civil Defense and other relevant authorities about the accuracy of the study and monitoring its implementation. The office shall undertake to provide a final certificate confirming the compliance of the business with the terms and conditions included in this Regulation. The office shall be considered responsible in solidarity with the warehouse owner for any default or neglect in this regard.

**4<sup>th</sup>:** The head of the bakery (the person in charge) is responsible for conducting monthly inspections and periodic tests (every three months) for the facility and its equipment, and for safety methods and firefighting and alarm equipment, and must repair any defects or malfunctions immediately. Failure to do this shall be considered severe negligence and may face penalties according to the law.

**5<sup>th</sup>:** The head of the bakery (the person in charge) must constantly inspect the buildings and their electrical or mechanical installations to ensure their safety and repair any defects and repair works to the building immediately. The person in charge and within his power may close the bakery and prevent its use if the situation requires or refer it to the relevant authority.

**6<sup>th</sup>:** The person in charge shall assign a register called (safety, alarm, and firefighting record) according to the application form prepared by Civil Defense. All pages are stamped with the seal of the relevant Civil Defense department or center. All the monthly inspections and periodic tests of fire, monitoring, alarm methods, the dates, results, repair works, and other data are recorded. Part of this record is dedicated to the building inspection and maintenance works and the building's electrical installations. The record must be kept within the bakery management so that the register is always at the Civil Defense representative's disposal to view and write notes, or fines.



**7<sup>th</sup>:** The person in charge may notify the relevant Civil Defense Center about the dates of the periodic tests and the entity performing these tests to agree on a civil defense representative to attend such tests on a suitable date. The Civil Defense representative will sign the register as proof of attending.

**8<sup>th</sup>:** All bakery workers All workers must be trained on fire & rescue, and ambulance in schools and national training institutes approved by the General Directorate of Civil Defense, or coordinate with Civil Defense incase these schools or institutes are not available to conduct these courses. The requesting training party bears the costs of such, or its share of the course costs based on the cost of one trainee.

**9<sup>th</sup>:** The person in charge undertakes to coordinate with the Civil Defense to prepare an intervention plan for firefighting, rescue, and ambulance, plus the procedures needed which bakery workers must consider until the arrival of civil defense teams.

## **Chapter 2**

### **First: location and buildings:**

1. The site must be licensed by the municipality and meet all the requirements of the license.
2. There must be a safe distance between the bakeries that operate using oil or gas fuels and the places that handle the sale or storage of hazardous and flammable materials or crowded areas.
3. Construction materials of the bakery must be non-flammable and fire-resistant.
4. The ovens must be inside rooms entirely separated from the rest of the building. The oven walls must be highly resistant to fire, with a resistance ranging from two to four hours, and have at least one door that opens to the outside where is air, with the provision of emergency exits and adequate ventilation to facilitate the workers exiting in case of fire.

5. The designs must consider direct delivery of oil or gas pipelines to the ovens and not through or below any other rooms or areas.
6. The oven room must have two emergency exits that are opened outwards with quick-open latches and known to the bakery staff.
7. The location of liquid or gas-fuel bakery ovens must be limited to the building's ground floor only. It is preferable to construct these types of bakeries in separate buildings if the area permits this.

## **Second: Oven's equipment and installations:**

1. Whether their ovens are powered by gas, oil, or electricity, all bakeries must comply with the standard rules and instructions for construction works and installations issued by SASO.
2. The installation of ovens and their related equipment must be carried out by competent technicians in such installations.
3. The ovens and their related equipment must be installed so that maintenance and repair work can be carried out easily.
4. After completing the ovens' installation process and their equipment, a test on the operation and combustion performance must be done to ensure that the stove works safely and that the switches and safety valves work correctly. The person in charge of the installations must submit a written certificate to the bakery owner, stating that all installations comply with the rules, instructions, and test results.

## **Third: Electrical systems, ventilation, and air systems (HVAC):**

1. All wires, cables, accessories, power breakers, fuses, and supply plugs/adapters must be non-melting/fusion or non-fire types, comply with Saudi Standards, and not cause an electric arc or unusual increase temperatures.
2. Metal-insulated copper cables must be used in the room that houses the oven and must withstand a temperature of 1000°C.



3. Emergency lighting must be installed in ovens rooms, on the corridors leading out, and on emergency exits.
4. All electrical equipment and connections must be connected to a ground cable (grounded) to release returning electric charges and prevent static electricity build-up.
5. Fire dampers must be installed in ventilation systems ducts near/through the fire-resistant walls penetration location.
6. Adequate and healthy ventilation must be provided, plus a good system for removing bad air, gas fumes, and dust particles.
7. The ventilation exhaust ducts must be well-installed in the walls and equipped with spark traps.
8. All light lamps must be protected inside glass covers to prevent their explosion and to avoid heat rays.

#### **Fourth: Liquid fuel and gas supply systems:**

1. The oil delivery network must be installed using pipes made of malleable iron, steel, red or yellow copper. The network pipes must not be too high above ground.
2. The oil delivery network must be protected against tampering, damage, and corrosion. Oil pipes buried underground must be protected against corrosion by using insulation materials and standard technical methods.
3. Connections/joints must be securely tightened and using the best leakproof materials.
4. Consideration must be taken for stretching, shrinking, shaking, or vibrating of oil delivery pipes and must be protected from these factors' effects.
5. Oil tanks installed below the floor level (underground level) must be stable, so this does not affect the pipe connections. The tanks must be covered with a concrete layer, thickness not less than 6 inches.
6. The oven (stove) supply must come from a sub-tank with a capacity of 200 gallons, enough for daily operation. Sub-tank supply comes from the main tank.



7. The stove must be ignited as soon as turning on the special equipment by providing steam or oil spray.
8. The flow of oil to the stove must be stopped if the ignition is not successful. The oil remains must be removed in the combustion chamber of the stove/furnace before re-igniting it.
9. The gas pipeline size must be sufficient to meet the maximum operating needs.
10. High and low-pressure regulating switches must be installed on both sides of the shut-off valve in gas lines.
11. In all ovens operated by an automatic spark, a spark detector must be installed, designed to operate the shut-off valve if the spark breaks down.
12. Manual Shut-off valves must be provided to stop fuel flow during emergencies.
13. Pressure regulators must be provided to maintain the required pressure.

### **Fifth: Liquid fuel storage and LPG tanks and cylinders:**

#### **1. Liquid fuel(oil):**

- Liquid fuel (oil) is stored in completely separates tanks from the building either buried underground, capacity not more (5,000) liters. An explosion-proof pump is installed on the tank to deliver fuel from the tank to the bakery; pump must not be buried, located in a room outside the building, room walls are fire-resistance for two hours at least, capacity 2,500L.
- If oil tanks need to be installed inside the building, the location must be below the floors of the building, a dedicated place from the building by allocating a room isolated from the rest of the building constructed from strong fire resistance materials and floor made of fireproof materials and walls made of Brick or stone walls with a thickness of not less than (9) inches or concrete of thickness not less than (5) inches. Chamber roofs are made of armed concrete with a thickness of not less (4) inches, chamber doors fire resistant, and equipped with barriers to prevent oil leakage outside the chamber. Or the oil tank must be installed below the floor level (underground level) and covered with a concrete layer with a thickness of not less than (6) inches.

- vehicles are not allowed to pass over the underground fuel tanks area unless the tanks and delivery pipes are resistant and well protected as per the standard specifications issued by SASO and comply with the regulations and instructions issued by the General Directorate of Civil Defense.

## 2. Gas tanks:

- Gas tanks are placed in a separate location inside a separate building. The site is constructed from fire-resistant materials for at least two hours. The roof is of light materials to separate/detach if an explosion occurs without affecting the walls. Separating must be made between the tank and near buildings or between the tank and other tanks in case there is more than one tank with a safe distance according to the following table: –

| Tank capacity Gallon/water | Minimum safe distance in foot       |                                   |
|----------------------------|-------------------------------------|-----------------------------------|
|                            | Between the tank and near buildings | Between the tanks and other tanks |
| 100 to 500 gallons.        | 10 feet.                            | 3 feet.                           |
| 501 to 2000 gallons.       | 25 feet.                            | 3 feet.                           |
| More than 2000 gallons.    | 50 feet.                            | 5 feet.                           |

- The position of the gas tank and the pressure regulator must be located above the ground.
- Gas tanks are equipped with automatic valves for excess gas leakage.
- The tank must be grounded to prevent static charges build-up.
- The tank location must be free of dry and accumulated grass that may ignite. Smoking or igniting any fire or sparks on the site is prohibited. Warning signs are made for this purpose to prevent the approach.
- Delivery/supply connections from the tank/tanks to the oven must be through tight metal tubes/pipes, and equipped with the necessary valves and adapters and never use hoses.



- The administrator must carry out regular periodic inspections on the tanks and connections/joints by a specialist technician to ensure their safety and that there are no leakage and record this in the safety register.
- The administrator must provide fire extinguishers and water sources at tank sites, and considering the use of water sprinklers to spray water on the surface and walls of the tanks with a capacity of more than 10,000 gallons of LPG gas.

### 3. **Cylinders Storage:**

- Gas cylinders are stored in a separate building as per the specifications mentioned in the Regulation of Selling and Storing LPG cylinders.
- If gas cylinders needed to be stored in a section of the bakery building for daily operations, this must be done with the following conditions:
  - Storing must be on the ground floors of the building, in a side room linked to the building's outer walls, and has one or more doors that open directly to the outside. Storing is prohibited in the basements below the ground level or on the upper floors of the building.
  - The storage site must be of non-flammable materials and separated from the building by fire-resistance walls and ceilings for not less than two hours. Some arrangements and preparations must be followed to minimize the effect of the explosion on the building by increasing the core of the interior walls and ceilings to make them more durable, strong, and resistant to explosions. The external/outside walls must be constructed from light materials, reflect heat from the outside. The surrounding area must always be secured so it is not affected due to the destruction of walls.
  - The number of cylinders must not exceed 30 cylinders of small size, or 15 cylinders of large size and the quantity stored must not exceed 300 kg. Cylinders are stored upright (vertical position) and in straight rows, leaving spaces between every three rows for easy handling and loading.
  - Cylinders must not expose to sunlight to avoid overheating.
  - Empty cylinders should be marked to distinguish and isolate them from full gas cylinders.

- Valve protection caps must be fixed on top of the valves if the cylinders are not used (stored) to avoid damaging them.

## **Chapter 3**

### **First: fire alarm and detection systems and firefighting tools and equipment**

1. A manual fire alarm system must be provided and placed in the area that houses the oven/ovens. Another alarm system must be provided within the corridor. (Passages leading to the main entrance of the bakery building).
2. An automatic fire detection system must be provided to cover all parts of the building as per the governing regulations and Civil Defense instructions.
3. The rooms designed to store liquid fuel or gas above ground must be equipped with an automatic fire extinguishing system (water sprinklers). This system is designed to release water in the form of a strong spray and under suitable pressure to cool fuel or gas tanks exposed to a high temperature due to fire as per Civil Defense rules and regulations.
4. Metal pipes, thickness 2 inches extending from outside the building to the fuel tanks, must be installed. An adaptor/coupling (lacor) must be installed on the pipes from outside the building, the type used in Civil Defense centers to deliver foam agent to fuel or gas tanks in the event of a fire accident; God forbid, especially if accessing the tank area is difficult or impossible to facilitate firefighting works.
5. Liquid fuel oven supply connections must be equipped with automatic shutoff valves to stop the flow of oil into the stoves during a fire, and they are called automatic fire valves (automatic fire safety shutoff valve), in addition to manual shutoff valves.
6. Oil storage devices/means must be submerged under the surface of the liquid, and if the heating source is electric, the current strength must not exceed 8 watts per square inch of the oil surface. Combustible materials or liquids must not be near the tank area to prevent fire or explosion of fuel tanks.

7. Fire alarm systems must release audible and visual signals that can be received locally (inside the building) as well as linking the signal systems either to a 24-hour control room or to the Civil Defense Center.
8. Portable fire extinguishers must be placed in different locations of the building. For areas exposed to electrical hazards, it is necessary to use Halon or Co<sup>2</sup> fire extinguishers, and in other areas, the dry chemical powder extinguishers are used. All extinguishers' capacity must be 12 kg and placed next to exit doors and near the required place need protection, the distance between each extinguisher and the other should not exceed (20) m.
9. The General Directorate of Civil Defense must approve all fire protection systems and equipment before installation.

## **Second: Safety measures during operation**

1. Instructions and guidelines included in this regulation and those specified by the manufacturer of bakery machines and equipment must be followed.
2. It is prohibited to keep more flour than the daily need to operate in the mixing room and other quantities of flour are stored in rooms dedicated for this purpose in order to provide protection for the rest of the building, preferably the flour store area connected to the outer road and away from the ovens area.
3. Floors and shelves must be kept clean from flour dust.
4. Flour must not be stored for more than a week.
5. Storage, mixing, and preparation areas are equipped with exhaust fans that prevent flour dust accumulation. All fans and electrical appliances must be of the isolated type that does not generate sparks to avoid explosion risks.
6. Warning signs indicating "No smoking" or "No open flames" must be placed throughout the building and storage areas.
7. Bakery workers and staff must receive adequate training in firefighting equipment and safety measures needed to be followed in bakeries.

8. It is not permitted to practice bakery business before submitting a final certificate issued by the technical office mentioned in this regulation. The Civil Defense will carry out the inspection and issue the safety certificate.
9. The periodic maintenance of electrical and mechanical equipment and installations, tank connections, valves, etc., is carried out by a competent technical company that will submit reports on equipment safety. This procedure is recorded in the safety register.
10. All job repairs and malfunctions/defects are kept in the safety register.
11. The inspection, maintenance, expiration dates, types, etc., are written on the extinguishers.

