



Health & Safety Department (Safety Section)

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Document History Log

Any modification to the document must be reviewed and approved
as per the corporate policies and procedures of document control

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V 4.0	09/05/2024	Safety Section	Adding the new logo of both Dubai Government & Dubai Municipality





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1 Purpose

Boilers and pressure vessels can be found in industry, hotels, workshops, construction sites and commercial buildings. Potential hazards exist from the operation of these boilers and pressure vessels. This guideline describes the requirements of periodical inspection of these pressure vessels by a competent person.

Under Dubai Local Order No. 61/1991, the users of boilers and pressure vessels shall ensure safe operation of plant and equipment for the protection of workmen from potential work accidents.



To make a meaningful assessment of the pressure vessel to be inspected, the following guide to inspection is intended to provide a broad outline of requirements. The owner and competent person should make such assessments as are necessary to evaluate the condition of the pressure vessel

2 Scope

This technical guideline applies to all establishments where boilers and pressure vessels are used in the Emirate of Dubai.

3 Definitions

Definition	Meaning
Boilers and Pressure Vessels	Mechanical devices designed to generate and contain pressurized steam or hot water for heating, power generation, or other industrial processes. Boilers utilize heat from combustion or other sources to heat water, producing steam that is used for heating or powering machinery. Pressure vessels, on the other hand, are containers designed to hold fluids or gases at pressures higher than atmospheric pressure. They are commonly used in various industries for storing and transporting compressed gases, liquefied gases, or other volatile substances.

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4 Guidelines

4-1 Inspection

Inspection Period

The inspection of boilers and pressure vessels shall be made at the time of installation and at regular intervals of 12 months thereafter. It is essential that inspections should be thorough and complete.

Competent Person

Only technically qualified and experienced person who have been approved as competent persons to examine and test boilers and pressure vessels by the Emirates International Accreditation Centre (EIAC) shall examine and test boilers, compressor air receives and other pressure vessels.

The company employing approved competent person shall comply with the following:

- The company should have a Trade License issued by the Economic Department Government of Dubai and accreditation from Emirates International Accreditation Centre (EIAC).
- The company should have an insurance coverage for the professional liability.

Precautions before Entering a Boiler or Pressure Vessels



Before a boiler or pressure vessel is entered for inspection, the owner or user shall determine that the vessel may be safely entered by ensuring adequate ventilation inside the vessel and it is free of harmful vapors/gases.

4-2 Boilers

External Inspections of Boilers

- The general cleanliness and accessibility of the boiler and its auxiliary apparatus should be noted. The boiler fittings, valves and piping should be checked.
- Any steam or water leak should be thoroughly investigated, and necessary correction measures initiated.
- Pressure Gauge:
- The pressure indicated on the pressure gauge shall be compared with a standard test gauge. If necessary, the pressure gauges should be promptly replaced.
- Water Level Gauge:

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- The water level gauge should indicate the accurate water level in the boiler. A sluggish response may indicate the obstruction in the pipe connections to the boiler and prompt corrective action should be taken.
- Safety Relief Values:
- The safety valves should be tested by allowing the pressure in the boiler to rise to the popping pressure. When inspections reveals that a safety valve is not operating properly by failure to open and close properly, the boiler shall be taken out of service. The valve shall be replaced or repaired to the correct pressure.
- Low Water Fuel Cut Off or Feed Controls:
- The operation of a low water fuel cut off control should be tested ensuring that the water level gauge is indicating correctly.
- Piping Connections and Fittings:
- Steam and water piping and fittings should be examined for evidence of leakage. To avoid water, hammer the location of the various stop and drain valves should be such that waters will not accumulate when the valves are closed.
- Blow off Piping:
- The blow down of the boiler should be operating normally with freedom of the piping to expand and contract and without excessive vibration.

Internal Inspection

- The owner or user should prepare a boiler for internal inspection under the direct supervision of the competent person, by taking all the safety precautions with reference to fuel supply/ignition system, water side, insulation, pressure gauge, isolation, manhole, entry into boiler.
- Where defects or deterioration are suspected or are commonly found in the boiler being inspected, or evidence of leakage showing on the covering, the insulation, brick work or covering shall be removed.
- When a portable extension light is used in a confined space, it shall not be operated at more than 24 volts.
- Scale, etc.
- All surfaces of the metal on the water side of the boiler shall be examined for deposits due to scale formation. The deposits if any should be cleaned.

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- All openings leading to external attachments such as water column connections, low water fuel cut off devices, openings in dry pipes and openings to safety valves should be examined to ensure they are free from obstructions.
- Bulging, blistering caused by overheating, cracks, corrosion, and grooving resulting in metal deterioration should be determined and corrective action initiated.
- Fire tube and water tubes
- The condition of the tubes should be examined for reduction in thickness, pitting, corrosion, bend, cracks etc.

Test

- Hydrostatic test

The hydrostatic test shall not exceed 1 1/2 times the maximum allowable working pressure.

- Steam test

After every repair, a steam test shall be done, and the safety valve shall be set to correct popping pressure and sealed.

Repairs

Any repair of boiler or its accessories shall be done under the supervision of the competent person. After repairs, the boiler shall be certified by competent person.

Boiler Attendant

Each boiler shall be operated by a qualified/trained boiler attendant.

4-3 Unfired Pressure Vessels



It is known that there are numerous types of pressure vessels in use. The most found pressure vessels in industry are air receivers, process vessels, gas storage tanks etc. operating above atmosphere pressure. The surfaces of shells shall be examined for possible cracks, blisters, bulges, and other evidence of deterioration.

External Inspection of Pressure Vessels

External inspection of a pressure vessel is made determine if its condition is safe for continued operation.

- On process vessels corrosion is a major consideration, the periodical examination will help to determine the reduction in wall thickness, if any. Any leakage of gas, liquid vapor should be investigated

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- Pressure Gauge: The pressure gauge should be in good working condition. The pressure indicated by the pressure gauge installed in the vessel shall be compared with the test gauge and calibrated if necessary.
- Pressure Relief Valves: The pressure relief valves should be in good operating condition.
- Drains: The drain provided in the vessel shall be opened to ensure that it functions properly.

Internal Inspections

- Corrosion is one of the most common conditions found in pressure vessels. When active or excessive corrosion is found remedial action should be taken.
- If any distortion is suspected or observed, the overall dimensions of the vessels shall be checked to determine the extent and seriousness of the distortion.

Pressure Test

- The pressure test should not exceed 1 1/2 times the maximum allowable working pressure.
- If the pressure vessel cannot be filled with water or liquid or is used in service, when even some traces of water cannot be tolerated, other means of testing such as pneumatically testing, non-destructive testing etc. methods shall be followed.

Repairs

- All repairs should be carried out by us under the supervision of competent person to ensure the safe operation of pressure vessel.



4-4 Certification by Competent Person

The safety certification shall be done by the competent person on satisfactory completion of tests and examination of boilers/pressure vessels. The test certificate shall indicate the repairs/alternations/re-rating of working pressure etc. made to the vessel.

If the condition of a boiler or pressure vessel is unsafe for operation, the competent person shall direct the owner or user to remove it from service and send a report to Health and Safety Department.

The test certificate shall be made available in the workplace and a copy sent to the Health and Safety Department.

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For (suggestions, comments, and complaints)	For further information
<ul style="list-style-type: none"> Unified interactive platform that connects Dubai Government and its customers: The 04 Platform https://04.gov.ae/ 📞 Dubai Municipality - Call Center (24/7): 800900 	<ul style="list-style-type: none"> ✉ safety@dm.gov.ae 📞 Dubai Municipality - Call Center (24/7): 800900

5 References

- Dubai Local Order No. 61/1991