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ANNEX C
[Clauses 11.13 (e)]

MAINTENANCE CHECK LIST FOR FIRE EXTINGUISHERS
(FOR ROUTINE CHECK AND QUARTERLY MAINTENANCE)

NOTE - During inspection/maintenance of extinguisher the general safety precautions prescribed under 11.10 should be complied with.

C-1 FIRE EXTINGUISHER, WATER TYPE GAS CARTRIDGE
(see IS 940, IS 13385 and IS 15683)

- a. Open the extinguisher, see the water level and throw away the water charge.
- b. Examine the extinguisher body internally and externally for corrosion and damaged conditions with illuminating probe. Damaged and corroded extinguishers should be removed from service. Corroded gas cartridge should also be replaced.
- c. Examine the gas cartridge for mass. If there is loss of more than 10 percent of original mass, the cartridge should be sent for recharging after being replaced by a charged one. For re-charging, procedure given in 12.4 should be followed.
- d. Examine nozzle, strainer, vent holes, internal discharge tube and sealing washer; replace them if not in good condition. Otherwise clean them thoroughly.
- e. Check the operating mechanism for free movement and piercing mechanism if working properly.
- f. Refill the fire extinguisher with clean water.

C-2 FIRE EXTINGUISHER, WATER STORED PRESSURE TYPE
(see IS 6234 and IS 15683)

- a. Examine and verify that the pressure gauge or any other pressure indicating device fitted in is indicating the internal pressure correctly, if the extinguisher shows a loss of pressure of more than 10 percent, refer to the manufacturer's instructions for appropriate action.
- b. Examine the extinguisher body externally for corrosion or damage (see 11.10).
- c. Weigh the extinguisher (with or without the operating mechanism according to the manufacturer's instructions) or use suitable alternate means to check that it contains the correct mass of liquid. Check the mass against the mass recorded when it was first put into service.

- d. Examine the nozzle and hose and clean, if necessary.
- e. Examine the hose for wear and replace, if not in good condition.
- f. Where the extinguishers are designed to have the operation mechanism removed, check the operating mechanism and discharge control (where fitted) for free movement, clean, rectify or replace, if necessary.
- g. Replace safety clip/wire seal or equivalent device as originally fitted. h) Refill the fire extinguisher with clean water.

NOTE – As this type of extinguisher is pressurised, it can be opened for inspection only after discharge of the extinguisher. It should be subjected to discharge/performance test every two years.

C-3 FIRE EXTINGUISHER, FOAM TYPE MECHANICAL (see IS 10204, IS 13386 and IS 15683)

- a. Open the extinguisher, check the liquid level. Pour liquid in separate clean receptacle to see if there is any sediment at the bottom of the cylinder. Reject the charge if there is sufficient sludge formation.
- b. Examine the extinguisher externally and internally for any corrosion or damage. Damaged and corroded extinguisher should be removed from service. Corroded gas cartridge should also be replaced.
- c. Examine the gas cartridge of mass. If there is loss of more than 10 percent of original mass, replace it with fully charged one.
- d. Examine the foam generating nozzle, strainer, vent holes, internal discharge tube ceiling washer, etc. Replace them, if not in good condition. Otherwise clean them thoroughly.
- e. Check the operating mechanism for free movement and piercing mechanism for proper working.
- f. Clean the hose assembly and check it for any dust/sediment at either shank ends.

C-4 FIRE EXTINGUISHER, FOAM TYPE MECHANICAL STORED PRESSURE (see IS 15397 and IS 15683)

Examine and verify that the pressure gauge or any other pressure indicating device fitted in is indicating the internal pressure correctly, if the extinguisher shows a loss of pressure of more than 10 percent, refer to the manufacturer's instructions for appropriate action.

Open the extinguisher, check the liquid lever. Pour liquid in separate clean receptacle to see if there is any sediment at the bottom of the cylinder. Reject the charge, if there is sufficient sludge formation.

- a. Examine the extinguisher body externally for corrosion or damage (see 11.10).
- b. Examine the foam generating nozzle, strainer, vent holes, internal discharge tube ceiling washer, etc. Replace them, if not in good condition. Otherwise clean them thoroughly.
- c. Weigh the extinguisher (with or without the operating mechanism according to the manufacturer's instructions) or use suitable alternate means to check that it contains the correct mass of liquid. Check the mass against the mass recorded when it was first put into service.
- d. Examine the nozzle and hose and clean, if necessary.
- e. Examine the hose for wear and replace, if not in good condition.
- f. Where the extinguishers are designed to have the operation mechanism removed, check the operating mechanism and discharge control (where fitted) for free movement, clean, rectify or replace, if necessary.
- g. Replace safety clip/wire seal or equivalent device as originally fitted.
- h. Refill the fire extinguisher with compound.

C-5 FIRE EXTINGUISHER, DRY POWDER TYPE GAS CARTRIDGE (see IS 2171, IS 10658, IS 11833 and IS 15683)

All dry powder extinguishers should be inspected and maintained in accordance with the following. The dry powder extinguisher should be opened in a dry room and for a minimum possible time to avoid effect to atmospheric moisture on powder.

- a. Dry powder extinguisher, where discharge control is fitted on the nozzle, should be operated before opening the extinguisher to ensure that there is no pressure in the extinguisher.
- b. Weigh the extinguisher to check the correct mass of powder filled in it which should be marked on the body of extinguisher and record book when it was first put into service.
- c. Open the extinguisher and remove gas cartridge and see that sealing disc is intact. Weigh and compare its mass with full mass of cartridge marked on it. In case, loss of mass is more than 10 percent, it should be replaced by new cartridge.
- d. Check the operating mechanism, discharge control for free movement and closing. Examine nozzle, hose, vent holes, piercing mechanism of cap cartridge holder, grease and wipe clean.
- e. Remove the inner shell (if any) and clean port holes.

- f. Empty the dry powder in a dry container and examine for caking, lumps and foreign matter, in which case replace it with new dry powder charge.
- g. Examine the extinguisher body internally for any damage or corrosion and replace corroded or damaged extinguisher.
- h. Clean the extinguisher using dry air.
- i. Return the original charge to the extinguisher and fit the cartridge and other fittings.
- j. In case of higher capacity dry powder fire extinguisher as per IS 10658, remove the carbon dioxide cylinder and check the weight marked on the cylinder to ensure that the size conforms to that stipulated in the specification. On weighing, if the loss of mass is more than 10 percent it should be sent for recharging. Also examine the wheel carriage and discharge hose assembly with control nozzle for free flow and test it with dry air.
- k. In case of dry powder extinguisher for metal fire as per IS 11833, in addition to (j) above, examine the applicator pipe and the discharge shower head for freedom from clogging and clean it with dry air. Sample of the dry powder for metal fire may be tested on a small fire of magnesium turning or chips to ensure that the powder is suitable for metallic fire risks.
- l. The safety valves and pressure gauges fitted on higher capacity extinguishers should be calibrated once in 3 years and recorded in the register.

C-6 FIRE EXTINGUISHER, CARBON DIOXIDE TYPE (see IS 2878, IS 8149 and IS 15683)

- a. Examine extinguisher body externally. Damaged or corroded extinguisher should be replaced.
- b. Weigh the extinguisher, compare mass against the mass marked on it for fully, charged extinguisher. It should be sent for refilling if the loss is more than 10 percent of mass. Clean and polish externally.
- c. Examine hose, horn and assembly and clean. In case of trolley mounted extinguisher, examine the wheel carriage for free movement.

C-7 FIRE EXTINGUISHER, CLEAN AGENT GAS TYPE (see IS 15683)

- a. Examine extinguisher body externally. Damaged or corroded extinguisher should be replaced.
- b. Check the pressure gauge to see that extinguisher is pressured correctly. Extinguisher showing loss in pressure should be sent to manufacturer for pressurisation.

- c. Weigh the extinguisher to check its contents of the extinguishing media and compare it with mass recorded on the cylinder. In case of loss of more than 10 percent, the extinguisher should be sent for recharging.

C-8 FIRE EXTINGUISHER, DRY POWDER TYPE STORED PRESSURE (see IS 13849 and IS 15683)

All dry powder extinguishers should be inspected and maintained in accordance with the following. The dry powder extinguisher should be opened in a dry room and for a minimum possible time to avoid effect to atmospheric moisture on powder.

- a. Examine and verify that the pressure gauge or any other pressure indicating device fitted in is indicating the internal pressure correctly, if the extinguisher shows a loss of pressure of more than 10 percent, refer to the manufacturer's instructions for appropriate action.
- b. Examine extinguisher body externally. Damaged or corroded extinguisher should be replaced.

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ANNEX D

(Clauses 11.4.1 and 12.3)

**REFILLING SCHEDULE FOR FIRE EXTINGUISHER AND SCHEDULE
FOR OPERATIONAL TEST ON FIRE EXTINGUISHERS**

D-1 Extinguishers to be refilled/operated for performance test in annually cycle manner

D-1.1 Once in Two (2) Years

- a) Portable fire extinguisher, water type stored pressure.
- b) Portable fire extinguisher, mechanical foam type stored pressure.
- c) 135 litre fire engine, foam type.

D-1.2 Once in Three (3) Years

BC and ABC powder extinguisher confirming to IS 4308 and IS 14609 respectively.

D-1.3 Once in Five (5) Years

- a) Portable fire extinguisher, Water type 9 litre (gas cartridge).
- b) Portable fire extinguisher, mechanical foam type 9 litre (cartridge type).
- c) Portable fire extinguisher, water type 50 litre (gas cartridge).
- d) Portable fire extinguisher, mechanical foam type 50 litre (gas cartridge).
- e) Fire extinguisher, carbon dioxide type (portable and trolley mounted).
- f) Higher capacity dry powder fire extinguisher (trolley mounted).
- g) Dry powder fire extinguisher for metal fires.
- h) Clean agent fire extinguishers.

Notes:

1. In corrosive environments, it is desirable to have the discharge test carried out at half the frequency mentioned.
2. As per the restriction on release of halon in atmosphere, it need not be necessary to refill/operate Halon 1211 type portable fire extinguisher with any stipulated period, However, as regards the pressure of injections gas, that is dry N₂ should be checked up for the adequate pressure on the pressure gauge/indicating gauge and the contents by weighing the fire extinguisher.

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ANNEX E
[Clauses 12.2.1 and 12.2.2 (g)]
**SCHEDULE FOR HYDRAULIC PRESSURE TESTING
OF FIRE EXTINGUISHERS**

- E-1** Every extinguisher installed in premises shall be hydraulically pressure tested as per the schedule given below. There shall not be any leakage or visible distortion. Extinguisher which fails in this requirement shall be replaced.
- E-2** The carbon dioxide type and clean agent type fire extinguishers shall be pressure tested every time when the cylinders are sent for recharging (after periodic discharge test or otherwise) to the pressure specified in the relevant Indian Standard specifications.

SI No.	Type of Extinguisher	Test Interval Year	Test Pressure kg/cm ²	Pressure Maintained for min
i)	Water Type (gas cartridge) (IS 940)	3	35	2.5
ii)	Water Type (stored pressure) (IS 6234)	3	35	2.5
iii)	Water Type (gas cartridge) (IS 13385)	3	35	2.5
iv)	Mechanical Foam Type (gas cartridge) (IS 10204)	3	35	2.5
v)	Mechanical Foam Type (stored pressure) (IS 15397)	3	35	2.5
vi)	Mechanical Foam Type (gas cartridge) (IS 13386)	3	35	2.5
vii)	Mechanical Foam Type (gas cartridge) 135 litre (IS 14951)	3	35	2.5
viii)	Dry Powder (stored pressure) (IS 13849)	3	35	2.5
ix)	Carbon Dioxide IS 2878	5	250	2.5
x)	Clean Agent (IS 15683)	3	35	2.5
xi)	Dry Powder (gas cartridge) (IS 2171, IS 10658 and IS 11833)	3	35	2.5

NOTE – Extinguisher's should be hydraulically tested with cap.

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ANNEX F
(Clauses 12.2.1)

LIFE OF FIRE EXTINGUISHERS

Sl. No.	Type of Extinguisher	Life Time, year
i)	Water Type	10
ii)	Foam Type	10
iii)	Powder Type	10
iv)	Carbon Dioxide	15
v)	Clean Agent	10

NOTES

1. Life of extinguishers shall be considered from date of manufacture of extinguishers.
2. In case of failure in hydraulic pressure testing, extinguisher shall be rejected immediately before the life time given above.