5.9. Clean Agent Systems - acceptance test and maintenance

5.9.1. Clean Agent Systems shall be inspected and maintained as per the minimum guidelines in accordance with **Table 9.36.** However, detailed acceptance, inspection tests and maintenance shall be as per **NFPA 2001, and Manufacturer's guidelines.**

Table 9.36.: Clean Agent Systems Testing, Inspection and Maintenance

ITEM	REQUIREMENTS
1. ACCEPTANCE TEST/ INSPECTIONS	i. The completed system shall be reviewed and tested by qualified personnel to meet the approval of Civil Defence. Only listed equipment and devices shall be used in the systems. To determine that the system has been properly installed and will function as specified, following inspection tests shall be performed. ii. The piping distribution system shall be inspected to determine that it is in compliance with the design and installation documents. iii. Nozzles and pipe size shall be in accordance with system drawings. Means of pipe size reduction and attitudes of tees shall be checked for their conformance to the design. iv. Piping joints, discharge nozzles, and piping supports shall be securely fastened to prevent unacceptable vertical or lateral movement during discharge. Discharge nozzles shall be installed in such a manner that piping cannot become detached during discharge. v. During assembly, the piping distribution system shall be inspected internally to detect the possibility of any oil or particulate matter soiling the hazard area or affecting the agent distribution due to a reduction in the effective nozzle orifice area. vi. The discharge nozzle shall be oriented in such a manner that an optimum agent dispersal can be effected. vii. If nozzle deflectors are installed, they shall be positioned to obtain the maximum benefit. viii. The discharge nozzles, piping, and mounting brackets shall be installed in such a manner that they will not potentially cause injury to personnel. Agent shall not directly impinge on areas where personnel could be found in the normal work area. The agent shall not directly impinge on any loose objects or shelves, cabinet tops, or similar surfaces where loose objects could be present and become missiles. ix. All agent storage containers shall be properly located in accordance with an approved set of system drawings. x. All containers and mounting brackets shall be fastened securely in accordance with the manufacturer's requirements. xi. All total flooding systems shall have the enclosure examined and tested to locate and then effectively seal any significant air leaks that could result in a failure of the enclosure to hold the specified agent concentration level for the specified holding period. The currently preferred method is using a blower door fan unit and smoke pencil. Quantitative results shall be obtained and recorded to indicate that the specified agent concentration for the specified duration of protection is in compliance with the consultant's approved designs. xii. The power shall be supplied to the control unit from a separate dedicated source that will not be shut down on system operation. xiii. Adequate and reliable primary and 24-hour minimum standby sources of energy shall be used to provide for operation of the detection, signaling, control, and actuation requirements of the system. xiv. The piping shall be pneumatically tested in a closed circuit for a period of 10 minutes at 40 psig (276 kPa). At the end of 10 minutes, the pressure drop shall not exceed 20 percent of the test pressure. xv. A flow test using nitrogen or an inert gas shall be performed on the piping network to verify that flow is continuous and that the piping and nozzles are unobstructed.