DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

GENERAL INDUSTRY SAFETY STANDARDS

(By authority conferred on the director of the department of licensing and regulatory affairs by sections 16 and 21 of 1974 PA 154, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, and 2011-4, MCL 445.2001, 445.2011, 445.2025, and 445.2030)

PART 9. FIXED FIRE EQUIPMENT

R 408.10901 Scope.

Rule 901. This part sets forth general rules which apply to the installation, use, maintenance, and testing of fixed fire extinguishing systems in, around, or about a place of employment as required by provisions of other standards.

History: 1979 AC; 1984 AACS.

R 408.10902 Definitions; A to C.

Rule 902. (1) "Automatic sprinkler system" means a network of specially sized piping to which sprinklers are connected and systematically spaced. The system is activated by heat to discharge water over a fire starting at any point. This system is connected to a water supply through a controlling valve and a device for activating an alarm when the system is operating.

(2) "Carbon dioxide extinguishing system" means a system of pipes or hoses, nozzles, a triggering device and a pressurized container of carbon dioxide. The gas dilutes the oxygen or gaseous fuel, thus stopping the combustion chain reaction.

(3) "Class A fire" means a fire that has, as its fuel, ordinary combustible material, such as wood, cloth, paper, rubber, and many plastics.

(4) "Class B fire" means a fire that has, as its fuel, flammable liquids, gases, or greases.

(5) "Class C fire" means a fire that involves energized electrical equipment where the nonconductivity of the extinguishing agent is necessary to prevent shock. The fuel consumed by a class C fire will be classed as A, B, or D.

(6) "Class D fire" means a fire that involves the oxidation reaction of combustible metals, such as magnesium, titanium, zirconium, sodium, or potassium.

History: 1979 AC.

R 408.10903 Definitions; D to F.

Rule 903. (1) "Dry chemical extinguishing system" means a system of pipes or hoses, nozzles, an actuating device, an expellant gas and a container holding a dry chemical. When

activated, the expellant gas carries the dry chemical in suspension to stop the combustion chain reaction.

(2) "Dry chemical" means an agent, capable of extinguishing a fire, composed of very small particles, such as sodium bicarbonate, potassium bicarbonate, or monoammonium phosphate, with added particulate material supplemented by special treatment to prevent caking and providing flowability.

(3) "Dry pipe system" means an automatic sprinkler system employing compressed air or other nonflammable gases in the system instead of water. When a sprinkler opens, relieving the air pressure, water pressure opens a dry pipe valve filling the system with water. This system is normally used where piping is exposed to freezing temperatures.

(4) "Fire pump" or "booster pump" means a water pump used to supply water from a suction supply at a specific pressure and volume to a sprinkler or standpipe system.

(5) "Fixed fire equipment" means a fire extinguishing system which is permanently mounted and portions of those systems which may be portable, such as a hose and nozzle attached to a fixed supply of extinguishing agent.

(6) "Flammable liquid" means any liquid having a flashpoint below 100 degrees Fahrenheit.

(7) "Flammable material" means that material which ignites easily, burns intensely, or has a rapid rate of flame spread.

(8) "Foam-water spray system" means a special system, pipe-connected to a source of foam concentrate and to a water supply, equipped with appropriate devices for extinguishing agent discharge and distribution over the area or equipment to be protected.

History: 1979 AC; 1984 AACS.

R 408.10905 Definitions; H to P.

Rule 905. (1) "Halogenated extinguishing system" means a fixed system of pipes or hoses, nozzles, an actuating device and a container containing a halogenated agent under pressure. The agent inhibits the chemical reaction of fuel and oxygen, thus stopping the combustion chain reaction.

(2) "High expansion foam system" means a system of flooding an area with an aggregation of bubbles mechanically generated by the passage of air or gas through a net or screen which is wetted by a solution of foaming agents and generated as a foam in a ratio of 100 to 1000 to 1.

(3) "Local fire alarm system" means a system of boxes or devices which will manually or automatically activate a visual or audible alarm, or both, to alert an employee.

(4) "Predischarge or discharge alarm" means an audible or visual device interconnected with an extinguishing system and a detecting actuating device.

History: 1979 AC.

R 408.10907 Definitions; S to W.

Rule 907. (1) "Sprinkler" or "sprinkler head" means a device which is installed in a sprinkler system and controls the direction and area of coverage of an extinguishing agent.

(2) "Standpipe and hose system" means a water pipe and a hose used where the building height or character requires an immediate means of obtaining a fire stream.

(3) "Water flow alarm" means a device so constructed and installed that any flow of water from a sprinkler system, equal to or greater than that from a single sprinkler, will result in an audible alarm signal on the premises.

History: 1979 AC.

R 408.10911 Employer's responsibility.

Rule 911. (1) An employer shall be responsible for the maintenance of the fixed fire equipment system in the area occupied or controlled by him.

(2) An employer shall furnish training to an employee before assignment to perform maintenance on a fixed fire equipment system.

(3) An employer shall have the design of the fixed fire equipment system reevaluated whenever the occupancy changes or fire hazards increase.

(4) An employer shall keep a record of the 3 most recent tests and inspections, but in no case shall it cover less than a 12-month period.

History: 1979 AC.

R 408.10912 Employee's responsibility.

Rule 912. An employee shall not perform maintenance or make inspections on fixed fire equipment unless he has been trained for the type of equipment to be maintained or inspected and has been authorized to do so.

History: 1979 AC.

R 408.10913 Notification.

Rule 913. Whenever fire equipment is closed or removed from service, the following shall be accomplished:

(a) The plant manager or a designated representative shall be notified.

(b) The balance of the system shall be kept operable.

(c) After alterations or repairs, the system shall be tested and resealed in operable condition where required, and those persons in subdivision (a) advised.

History: 1979 AC; 1984 AACS.

R 408.10914. Requirements.

Rule 914. (1) A fixed fire equipment system, as listed in R 408.10921 and R 408.10941 to R 408.10976, shall be installed for all of the following:

(a) All areas inside a building where flammable liquids are mixed, dispensed or applied, or used for washing or quenching, except either of the following:

(i) A dip tank holding less than 150 gallons, having less than 4 square feet of liquid surface or both.

(ii) As dispensed from an approved safety container of 5 gallons or less.

(b) Other areas where the quantities of flammables are likely to burn rapidly and injure a nearby employee. Such a system shall be classed according to table 1. Other equivalent systems may be used, if such systems meet standards or tests of the department of licensing and regulatory affairs and are installed and maintained in accordance with nationally recognized requirements.

(2) Where a fixed fire equipment system is required or is installed and in use, it shall be installed and maintained as prescribed in R 408.10916 to R 408.10984.

(3) Except as prescribed in R 408.10971, a fixed fire equipment system containing an active agent or propellant whose thermal decomposition product of products have a level of vapor toxicity equal to or greater than any of the materials listed in table 2 shall not be used, installed for use, or allowed to remain installed for use where an employee would be exposed to the agent or propellant.

TABLE 1

HAZARD	EXTINGUISHER AGENT TYPE AND CONTENTS
CLASS A	FIRE FOAM, MULTI-PURPOSE DRY CHEMICAL, HALOGENATED AGENTS, WATER.
CLASS B FIRE	CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER, MULTILPURPOSE DRY CHEMICAL, HALOGENATED AGENTS SUCH AS HALON 1301.
CLASS C FIRE	CARBON DIOXIDE, DRY CHEMICAL, MULTI-PURPOSE DRY CHEMICAL, WATER MIST, HALOGENATED AGENTS.
CLASS D FIRE	EXTINGUISHING AGENT LISTED FOR USE ON A SPECIFIC COMBUSTIBLE METAL HAZARD.

TABLE 2

1. Carbon tetrachloride, CCL_4
2. Chlorobromomethane, CH_2Br CL
3. Azeotropic chlormethane, CM_7
4. Didbromodifluoromethane, CBr_2F_2
5. 1, 2-dibromo-2 chloro-1, 1, 2-trifluorothane, Cbr $F_2CBrCLf$
6. 1, 2-dibromo-2, 2-difluorothane, $CH_2BrCBrF_2$
7. Methyl bromide, CH_3Br
8. Ethylene dibromide, CH_2BrCH_2Br
9. Hydrogen bromide, HRr

10. Methylene bromide, CH_2Br_2
11. Bromodifluromethane, $CHBrF_2$

History: 1979 AC; 2013 AACS.

R 408.10916 Gravity, suction, and pressure tanks.

Rule 916. (1) A gravity or suction water tank shall be maintained at the full water level designed for fire protection purposes.

(2) The water and air in a pressure water tank shall be maintained at the designed levels and pressures.

(3) The water in a gravity, suction, or pressure tank and risers shall be maintained above freezing temperature. Where a heater is used, the water temperatures shall be not more than 60 degrees Fahrenheit.

(4) A steel water tank shall be inspected not less than every 3 years for deterioration and, when necessary, repairs made.

(5) A wooden water tank shall be inspected not less than every 2 years for deterioration and, when necessary, repairs made.

History: 1979 AC.

R 408.10917 Fire pumps.

Rule 917. (1) A fire pump shall be operated not less than once a month as follows:

(a) A steam fire pump operated until water is discharged freely from the relief valve.

(b) A centrifugal pump operated at rated speed.

(c) If power is provided by an internal combustion engine, the engine shall be run for not less than 30 minutes to bring it up to normal operating temperature.

(d) An automatically controlled pump tested manually shall have not less than 1 start each month accomplished by reducing the pressure in the water pressure sensing line or with a larger flow from the entire system.

(2) A fire pump shall be maintained in a room above freezing temperature.

(3) A fire pump shall be used for fire protection only.

(4) A fire pump shall be tested to rated capacity not less than once a year.

History: 1979 AC.

R 408.10919 Existing fixed fire extinguishing systems.

Rule 919. An existing fixed fire extinguishing system installed or that portion modified after August 17, 1974, shall be in compliance with the applicable general industry safety standards that were in effect at the time of installation or modification.

History: 1984 AACS.

R 408.10920 New fixed fire extinguishing systems.

Rule 920. A new fixed fire extinguishing system installed or that portion modified shall meet the applicable rules of this part.

History: 1984 AACS.

AUTOMATIC SPRINKLER SYSTEMS

R 408.10921 Installation and maintenance.

Rule 921. An automatic sprinkler system installed or that portion of a system modified after December 31, 1983, shall be installed and maintained as prescribed in N.F.P.A. standard #13-1980, "Installation of Sprinkler Systems," as adopted by reference in R 408.10999(a).

History: 1979 AC; 1984 AACS.

R 408.10923 Inspection and maintenance of dry systems.

Rule 923. A dry pipe system shall:

(a) Have the system pressure checked not less than once a week and replenished, when necessary.

(b) Have a means of maintaining the temperature of the dry pipe valve above freezing.

(c) Have all low drain points drained and free of water during freezing temperatures.

(d) Maintain the priming water at the designed level.

(e) Give the dry pipe valve a working test, cleaning, and resetting not less than once a year.

History: 1979 AC.

R 408.10924 Clearance to sprinkler deflectors.

Rule 924. The clearances between a ceiling type sprinkler deflector and the top of a stock pile shall be:

(a) Thirty-six inches where the top of solid piled stock is more than 15 feet high or is more than 12 feet in rack or palletized storage.

(b) Eighteen inches for all other piling.

History: 1979 AC.

R 408.10925. Inspection and maintenance.

Rule 925. (1) A sprinkler shall not be painted or coated except by the sprinkler manufacturer. Excepted are petroleum jelly or paper bag coverings, which shall not interfere with the normal functioning of the sprinkler.

(2) An automatic sprinkler shall be replaced with a new sprinkler after it is installed 50 years or shows evidence of corrosion, leakage, or damage.

(3) A sprinkler wrench shall be used for installing and removing a sprinkler.

(4) A broken or loose pipe hanger shall be replaced or refastened.

(5) The employer shall perform a main drain flow test on each system annually. The inspectors test valve shall be opened not less than every 2 years to assure the system operates properly.

History: 1979 AC; 1984 AACS; 2013 AACS.

R 408.10926 Supplies.

Rule 926. (1) A stock of extra sprinklers shall be maintained or readily available for each temperature rating and type so that the system can be returned to readiness as soon as possible.

(2) An automatic sprinkler system of more than 20 sprinklers shall have at least 1 automatic water supply capable of providing design water flow for not less than 30 minutes.

History: 1979 AC; 1984 AACS.

R 408.10927 Outside open sprinkler equipment.

Rule 927. Outside open sprinkler equipment shall be tested during warm weather not less than once a year.

History: 1979 AC.

R 408.10928 Sprinkler alarms.

Rule 928. An automatic sprinkler system having more than 20 sprinklers shall have a water flow alarm which sounds an audible signal on the premises upon water flow through the system equal to the flow from a single sprinkler.

History: 1984 AACS.

STANDPIPE AND HOSE SYSTEMS

R 408.10931 Installation and maintenance.

Rule 931. (1) A standpipe and hose system installed or that portion of a system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #14-1980, "Standpipe and Hose Systems," as adopted by reference in R 408.10999(b).

(2) Subrule (1) of this rule does not apply to a class 1 standpipe system.

History: 1979 AC; 1984 AACS.

R 408.10933 Location.

Rule 933. A standpipe shall be located so as to be unobstructed, readily accessible, and so guarded that it is protected against mechanical damage.

History: 1979 AC.

R 408.10934 Hose and hose connections.

Rule 934. (1) Where a hose outlet is provided for use of employees, the hose length shall not exceed 100 feet of approved 1 1/2 inch lined hose attached to the outlet. Unlined hose may remain in use on existing systems provided it is serviceable. Replacement shall be with approved lined hose. In extreme conditions or climates where damage or deterioration may result, the hose may be stored in another location provided it is readily available to be connected.

(2) Hose and hose outlets shall be within easy reach of a person standing on a floor, unobstructed and conspicuously marked.

(3) Hose outlets shall be standardized having threads or adapters with threads conforming to those used by the organized public fire department.

(4) A shut-off type nozzle shall be provided, except where unlined hose is still approved. Nozzles shall be of an approved type and have a discharge coefficient not exceeding 110 psi (7.5 bars).

History: 1979 AC; 1984 AACS.

R 408.10935 Hose rack or reel.

Rule 935. A hose rack or reel shall be provided for fire hose at each hose station and the hose and nozzle shall be maintained in the rack or reel when not in use.

History: 1979 AC.

R 408.10936 Rescinded.

History: 1979 AC; 1984 AACS.

R 408.10937 Inspection of standpipe and hose system; water level; valve; water supply.

Rule 937. (1) An inspection of all portions of a standpipe and hose system shall be made not less than once a year by a trained and authorized employee or an outside service.

(2) A water tank shall be maintained at the water level designed for fire protection purposes and where a pressure tank is used, the air pressure shall be maintained at the designed pressure level, but not less than 75 psi.

(3) The valve to the main connection of the source of water to a standpipe shall be kept open at all times.

(4) The water supply for standpipe and hose systems shall provide a minimum of 100 gallons per minute for not less than 30 minutes.

History: 1979 AC; 1984 AACS.

CARBON DIOXIDE SYSTEMS

R 408.10941 Installation and maintenance.

Rule 941. A carbon dioxide extinguishing system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #12-1980, "Carbon Dioxide Extinguishing Systems," as adopted by reference in R 408.10999(c).

History: 1979 AC; 1984 AACS.

R 408.10944 Installations prohibited.

Rule 944. A carbon dioxide extinguishing system shall not be installed to control a fire involving:

(a) Chemicals containing their own oxygen supply, such as cellulose nitrate.

(b) Combustible metals or special hazardous materials, such as sodium, potassium, magnesium, titanium, and zirconium.

(c) Metal hydrides.

History: 1979 AC.

R 408.10945 Safeguards.

Rule 945. (1) Where there is a possibility that an employee may be trapped in, or enter into, an atmosphere made hazardous by a carbon dioxide discharge, the following safeguards shall be provided:

(a) Predischarge and discharge alarm.

(b) Warning signs.

(c) Employee training.

(d) Self-contained breathing apparatus.

(2) Where an alarm, audible or visual, is provided to indicate system failure, it shall be distinctive from an alarm indicating operation or hazardous conditions and shall operate continuously until manually shut off.

(3) Before an employee enters an area where carbon dioxide has been discharged and may be trapped, the area shall be purged or the employee shall wear approved respiratory equipment.

History: 1979 AC.

R 408.10946 Inspection.

Rule 946. (1) A carbon dioxide extinguishing system shall be inspected by a trained and authorized employee or outside service:

(a) Not less than annually to insure operability.

(b) Not less than semiannually to insure that all high pressure cylinders are at the designed weight. A cylinder showing a net loss in weight of more than 10% shall be refilled or replaced.

(c) Not less than annually to check the accuracy of low pressure system liquid level gauges.

(d) If a container shows a loss of more than 10%, it shall be refilled, unless the minimum gas requirements are still provided.

(2) A tag shall be affixed indicating the date of inspection.

History: 1979 AC.

DRY CHEMICAL SYSTEMS

R 408.10951 Installation and maintenance.

Rule 951. A dry chemical extinguishing system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #17-1980, "Dry Chemical Extinguishing Systems," as adopted by reference in R 408.10999(d).

History: 1979 AC; 1984 AACS.

R 408.10952 Chemical agents.

Rule 952. Dry chemical extinguishing agents of different compositions shall not be mixed together. The system shall be refilled with the chemical stated on the approved nameplate or with an equivalent compatible material.

History: 1984 AACS.

R 408.10953 Installations prohibited.

Rule 953. A dry chemical extinguishing system shall not be installed to control a deep seated or burrowing fire in ordinary combustibles, or for the items prescribed in subdivisions (a) and (b) of R 408.10944.

History: 1979 AC.

R 408.10954 Safeguards.

Rule 954. Safeguards, as prescribed in R 408.10945, except subdivision (d), shall be provided where the possibility exists that an employee might be within the hazardous area during discharge of the extinguishing agent.

History: 1979 AC.

R 408.10955 Inspection.

Rule 955. (1) A dry chemical extinguishing system shall be inspected by a trained and authorized employee or outside service:

(a) Not less than annually to insure operability.

(b) Not less than semiannually to insure the installed expellant gas containers are at the designed pressure or weight.

(c) Not less than semiannually to insure the stored pressure dry chemical container is at the designed pressure.

(2) A tag shall be affixed indicating the date of inspection.

History: 1979 AC.

FOAM SYSTEMS

R 408.10961 Installation and maintenance.

Rule 961. (1) A foam system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standards #11-1978, "Foam Extinguishing Systems," #11A-1981, "High Expansion Foam Systems," and #11B-1977, "Synthetic Foam and Combined Agent Systems," as adopted by reference in R 408.10999(e), (f), and (g).

(2) Foam-water sprinkler systems and foam-water spray systems installed or that portion of the system modified after December 31, 1983, shall be installed and maintained as prescribed in N.F.P.A. standard #16-1980, "Foam-Water Sprinkler Systems and Foam-Water Spray Systems," as adopted by reference in R 408.10999(h).

History: 1979 AC; 1984 AACS.

R 408.10963 Installations prohibited.

Rule 963. A foam system shall not be installed to control a fire involving any of the following:

(a) Chemicals containing their own oxygen supply, such as cellulose nitrate.

(b) Energized unenclosed electrical equipment.

(c) Water reactive metals, such as sodium and potassium.

(d) Water reactive materials, such as triethyl-aluminum and phosphorous pentoxide.

History: 1979 AC; 1984 AACS.

R 408.10964 Safeguards.

Rule 964. (1) Safeguards for a foam system shall be provided as prescribed in R 408.10945.

(2) Entry into foam shall be made only in an emergency. If emergency entry is necessary, self-contained breathing apparatus shall be worn in conjunction with a life line attended by another employee outside the hazardous area.

History: 1979 AC; 1984 AACS.

R 408.10965 Inspection and maintenance; foam systems.

Rule 965. (1) A high expansion or synthetic and combined agent foam system shall be inspected by a trained and authorized employee or by an outside service no less than once a year to ensure operability.

(2) A foam-water system shall be inspected not less than every 6 months.

(3) Strainers shall be inspected and cleaned after each use.

History: 1979 AC; 1984 AACS.

HALOGENATED EXTINGUISHING SYSTEMS

R 408.10971 Installation and maintenance.

Rule 971. (1) A halogenated fire extinguishing system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #12A-1980. "Halogenated Fire Extinguishing Agent Systems - Halon 1301," as adopted by reference in R 408.10999(i).

(2) The plan and installation of the halogenated fire extinguishing system shall be approved by the state fire marshal.

History: 1979 AC; 1984 AACS.

R 408.10973 Exceptions to use.

Rule 973. A halogenated fire extinguishing system shall not be used to extinguish fires as listed in R 408.10944.

History: 1979 AC.

R 408.10975 Safeguards.

Rule 975. (1) Where there is a possibility that an employee may be trapped in, or may enter into, an atmosphere made hazardous by the discharge of a halon 1301 extinguishing agent, the following safeguards shall be provided:

(a) A predischarge and a discharge alarm in a normally occupied area, except an explosion suppressant system, does not require a predischarge alarm if the concentration of the discharge agent does not exceed 7%. If evacuation of the area by personnel can be accomplished within 1 minute, the concentration may be increased to 10%.

(b) Warning signs.

(c) Employee training.

(2) Where an alarm, audible or visual, is provided to indicate system failure, it shall be distinctive from an alarm indicating operation or hazardous conditions, and shall operate continuously until manually shut off.

(3) Before an employee enters an area where halon 1301 has been discharged, the area shall be purged of that substance. In an emergency and before purging has been accomplished, an employee may enter the area while wearing approved respiratory equipment.

History: 1979 AC.

R 408.10976 Inspection and maintenance.

Rule 976. (1) A halogenated extinguishing system shall be inspected by a trained and authorized employee or by an outside service not less than once a year to insure operability.

(2) Not less than semiannually the following shall be accomplished:

(a) The weight and pressure of a refillable container of a halogenated extinguishing agent shall be checked. A container shall be repaired or replaced if the loss in net weight is more than 5% or the loss in pressure is more than 10%.

(b) The weight of a nonrefillable container shall be checked. A container shall be replaced if the net weight loss is more than 5%.

(c) The weight, pressure, and date shall be entered on a tag attached to the extinguisher.

History: 1979 AC.

LOCAL FIRE ALARM SYSTEMS

R 408.10981 Installation and maintenance.

Rule 981. (1) A local fire alarm system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #72A-1979, standard for the "Installation, Maintenance and Use of Local Protective Signaling Systems for Watchmen, Fire Alarm and Supervisory Service," as adopted by reference in R 408.10999(j).

(2) Where the protected premises has an emergency power supply, the local fire alarm system shall have a secondary source of power.

History: 1979 AC; 1984 AACS.

R 408.10983 Location.

Rule 983. (1) A local fire alarm system shall be mounted in a location where the system will not be activated by vibration or jarring.

(2) A manual fire alarm box shall be mounted permanently to a wall or post and protected against physical damage.

(3) A manual fire alarm box shall be located so that the maximum distance on each floor to a box will be not more than 200 feet. The box shall be unobstructed, readily accessible, and in the regular path of travel to an exit. The location of the box shall be identified by a sign or light visible from a distance of not less than 200 feet.

History: 1979 AC; 1984 AACS.

R 408.10984 Maintenance and inspection.

Rule 984. A local fire alarm system shall be tested by a trained and authorized employee or an outside service not less than once a week to insure operability by the activation of not less than 1 box.

History: 1979 AC.

FIRE DETECTION SYSTEMS

R 408.10991 Installation.

Rule 991. An automatic fire detection system installed or that portion of the system modified after December 31, 1983, shall be installed, modified, and maintained as prescribed in N.F.P.A. standard #72E-1982, "Automatic Fire Detection Systems," as adopted by reference in R 408.10999(k).

History: 1984 AACS.

R 408.10993 Location and mounting.

Rule 993. (1) Detectors shall be located or by other means be protected from mechanical or physical impact which could render them inoperable.

(2) Detectors subject to climatic or corrosive atmospheres, or contaminants shall be provided with protection to maintain operability.

(3) Detectors shall be supported independently of their attachment to wires or tubing.

History: 1984 AACS.

R 408.10995 Maintenance.

Rule 995. (1) All systems shall be maintained in operable condition and tested on a periodic basis to assure reliability and operating condition.

(2) Pneumatic- and hydraulic-operated detection systems installed after December 31, 1983, shall be a supervised system.

(3) Servicing, maintenance, and testing of detection systems shall be performed by trained persons knowledgeable in the operation and function of the system.

History: 1984 AACS.

R 408.10999. Reference standards.

Rule 999. The N.F.P.A. standards herein referred to are incorporated by reference. The standards are available for inspection at the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909. The standards may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or via the internet at www.nfpa.org at a cost as of the time of adoption of these rules, as stated in this rule:

(a) N.F.P.A. #13-1980, Installation of Sprinkler Systems, cost $27.00 each.

(b) N.F.P.A. #14-1980, Standpipe and Hose Systems, cost $27.00 each.

(c) N.F.P.A. #12-1980, Carbon Dioxide Extinguishing Systems, cost $27.00 each.

(d) N.F.P.A. #17-1980, Dry Chemical Extinguishing Systems, cost $27.00 each.

(e) N.F.P.A. #11-1978, Foam Extinguishing Systems, cost $27.00 each.

(f) N.F.P.A. #11A-1981, High Expansion Foam Systems, cost $27.00 each.

(g) N.F.P.A. #11B-1977, Synthetic Foam and Combined Agent Systems, cost $27.00 each.

(h) N.F.P.A. #16-1980, Foam-Water Sprinkler Systems and Foam-Water Spray Systems, Cost $27.00 each.

(i) N.F.P.A. #12A-1980, Halogenated Fire Extinguishing Agent Systems – Halon 1301, cost $27.00 each.

(j) N.F.P.A. #72A-1979, Installation, Maintenance & Use of Local Protective Signaling Systems for Watchmen, Fire Alarm & Supervisory Service, cost $27.00 each.

(k) N.F.P.A. #72E-1982, Automatic Fire Detection Systems, Cost $27.00 each.

History: 1984 AACS; 2013 AACS.