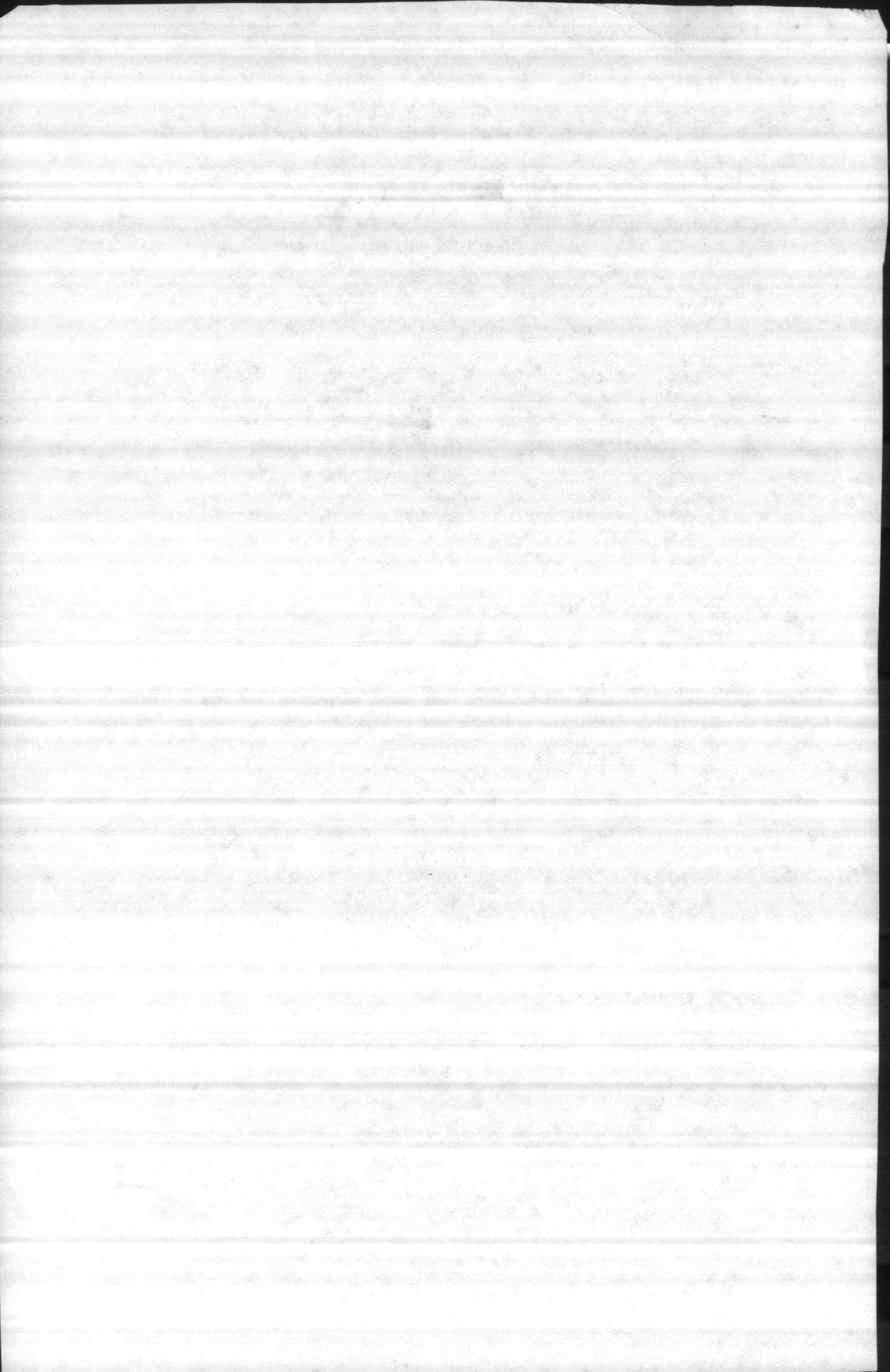


Test ✓

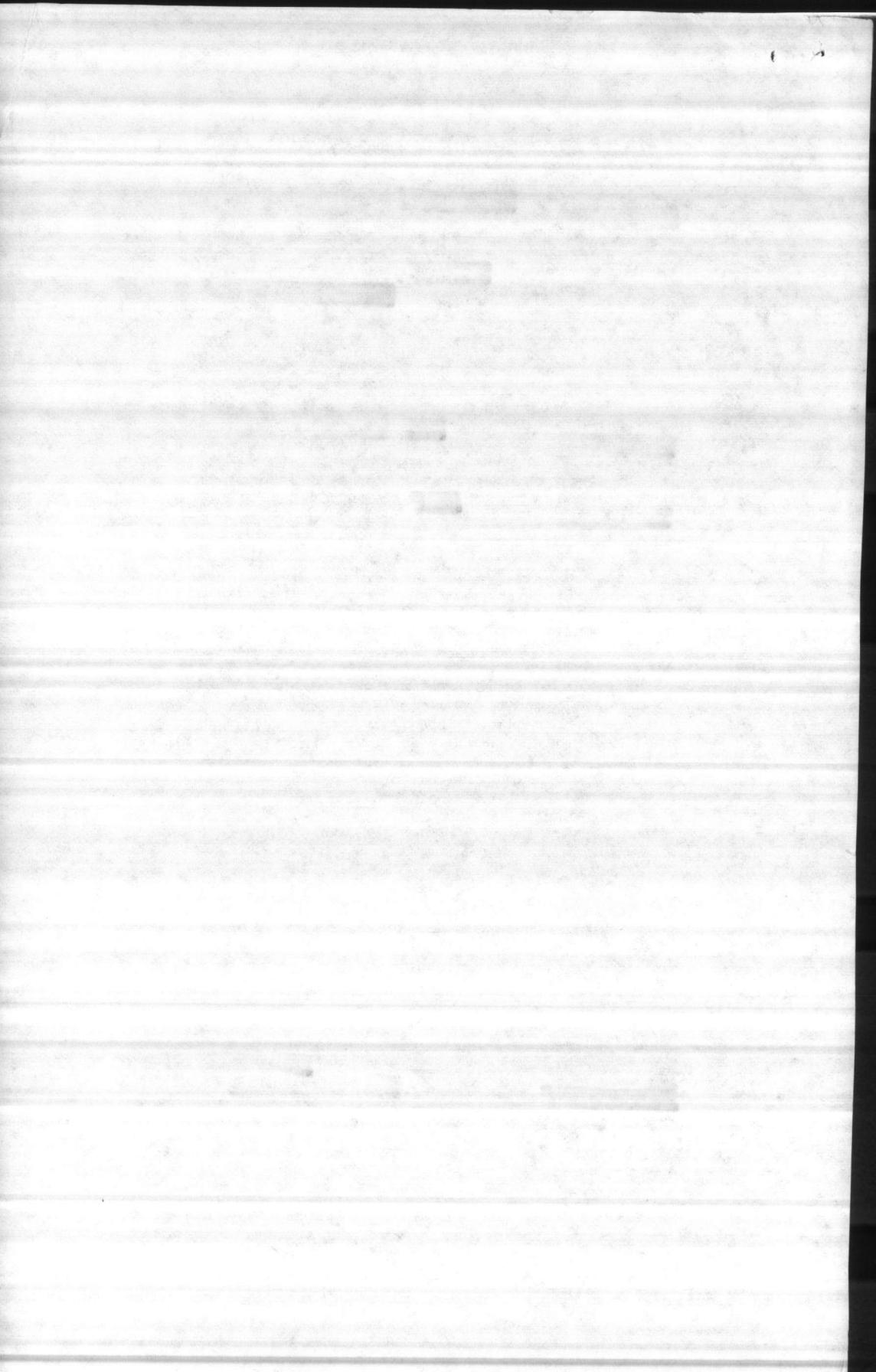
TABLE 2-1. TYPES OF FIRE ALARM SIGNALING SYSTEMS

Type	Description	Comments
1. <u>Local protective signaling system.</u>	An alarm system operating in the protected premises, responsive to the operation of a manual fire alarm box, waterflow in a sprinkler system or detection of a fire by a smoke or heat detecting system.	The main purpose of this system is to provide an evacuation alarm for the occupants of the building. Someone must always be present to transmit the alarm to fire authorities. See NFPA 72A, <i>Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm and Supervisory Service.</i>
2. <u>Auxiliary protective signaling system.</u>	An alarm system utilizing a standard municipal coded fire alarm box to transmit a fire alarm from a protected property to municipal fire headquarters. These alarms are received on the same municipal equipment and are carried over the same transmission lines as are used to connect fire alarm boxes located on streets. Operation is initiated by the local fire detection and alarm system installed at the protected property.	Direct means of summoning help from municipal fire department. Some communities will accept this type of system and others will not. See NFPA 72B, <i>Auxiliary Protective Signaling Systems.</i> Trouble signal may register in a separate attended location.
3. <u>Remote station protective signaling system.</u>	An alarm system connecting protected premises over leased telephone lines to a remote station such as a fire station or a police station. Includes separate receiver for individual functions being monitored, such as fire alarm signal, or sprinkler waterflow alarm.	<u>Requires leased lines into each premise.</u> See NFPA 72C, <i>Remote Station Protective Signaling Systems.</i>
4. <u>Central station protective signaling system.</u>	An alarm system connecting protected premises to a privately owned central station whose function is to monitor the connecting lines constantly and record any indication of fire, supervisory or other trouble signals from the protected premises. When a signal is received, the central station will take such action as is required, such as informing the municipal fire department of a fire or notifying the police department of intrusion.	Flexible system. Can handle many types of alarms, including trouble within system at protected premises. See NFPA 71, <i>Central Station Signaling Systems.</i>
5. <u>Proprietary protective signaling system.</u>	An alarm system which serves contiguous or noncontiguous properties under one ownership from a central supervising station at the protected property. Similar to a central station system but owned by the protected property.	Requires 24 hour manning of central supervising station on the premises. See NFPA 72D, <i>Proprietary Protective Signaling Systems.</i>
6. <u>Emergency Voice/Alarm Communication System.</u>	Provides for the inclusion of emergency voice/alarm communications in any of the systems listed above.	Provides dedicated facilities for the transmission of information to occupants of the building (including fire department personnel). See NFPA 72F, <i>Emergency Voice/Alarm Communication Systems.</i>



**TABLE 3-3. FIRE EXTINGUISHING SYSTEMS**

Type	Description	Comments
1. Wet-pipe automatic sprinkler system.	A permanently piped water system under pressure, using heat-actuated sprinklers. When a fire occurs the sprinklers exposed to the high heat open and discharge water individually to control or extinguish the fire.	Automatically detects and controls fire. Protects structure. May cause water damage to protected books, manuscripts, records, paintings, specimens, or other valuable objects. Not to be used in spaces subject to freezing. On-off types may limit water damage. See NFPA 13, <i>Standard for the Installation of Sprinkler Systems</i> and NFPA 22, <i>Standard for Water Tanks for Private Fire Protection</i> .
2. Pre-action automatic sprinkler system.	A system employing automatic sprinklers attached to a piping system containing air that may or may not be under pressure, with a supplemental fire detection system installed in the same area as the sprinklers. Actuation of the fire detection system by a fire opens a valve which permits water to flow into the sprinkler system piping and to be discharged from any sprinklers that are opened by the heat from the fire.	Automatically detects and controls fire. May be installed in areas subject to freezing. Minimizes the accidental discharge of water due to mechanical damage to sprinkler heads or piping, and thus is useful for the protection of paintings, drawings, fabrics, manuscripts, specimens and other valuable or irreplaceable articles that are susceptible to damage or destruction by water. See NFPA 13, <i>Standard for the Installation of Sprinkler Systems</i> and NFPA 22, <i>Standard for Water Tanks for Private Fire Protection</i> .
3. On-off automatic sprinkler system.	A system similar to the pre-action system, except that the fire detector operation acts as an electrical interlock, causing the control valve to open at a predetermined temperature and close when normal temperature is restored. Should the fire rekindle after its initial control, the valve will reopen and water will again flow from the opened heads. The valve will continue to open and close in accordance with the temperature sensed by the fire detectors. Another type of on-off system is a standard wet-pipe system with on-off sprinkler heads. Here each individual head has incorporated in it a temperature-sensitive device which causes the head to open at a predetermined temperature and close automatically when the temperature at the head is restored to normal.	In addition to the favorable feature of the automatic wet-pipe system, these systems have the ability to automatically stop the flow of water when no longer needed, thus eliminating unnecessary water damage. See NFPA 13, <i>Standard for the Installation of Sprinkler Systems</i> and NFPA 22, <i>Standard for Water Tanks for Private Fire Protection</i> .
4. Dry-pipe automatic sprinkler system.	Has heat-operated sprinklers attached to a piping system containing air under pressure. When a sprinkler operates, the air pressure is reduced, a "dry-pipe" valve is opened by water pressure and water flows to any opened sprinklers.	See No. 1. Can protect areas subject to freezing. Water supply must be in a heated area. See NFPA 13, <i>Standard for the Installation of Sprinkler Systems</i> and NFPA 22, <i>Standard for Water Tanks for Private Fire Protection</i> .
5. Standpipe and hose system.	A piping system in a building to which hoses are connected for emergency use by building occupants or by the fire department.	A desirable complement to an automatic sprinkler system. Staff requires training to use hoses effectively. See NFPA 14, <i>Standpipe and Hose Systems</i> .



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**TABLE 3-3. FIRE EXTINGUISHING SYSTEMS (continued)**

Type	Description	Comments
6. Halon automatic system.	A permanently piped system using a limited stored supply of a Halon gas under pressure, and discharge nozzles totally flood an enclosed area. Released automatically, by a suitable detection system. Extinguishes fires by inhibiting the chemical reaction of fuel and oxygen.	No agent damage to protected books, manuscripts, records, paintings or other irreplaceable valuable objects. No agent residue. Halon 1301 can be used with safeguards in normally occupied areas. Halon 1211 total flooding systems are prohibited in normally occupied areas. Halons may not extinguish deep-seated fires in ordinary solid combustibles such as paper, fabrics, etc.; but are effective on surface fires in these materials. These systems require special precautions to avoid damage effects caused by their extremely rapid release. The high velocity discharge from nozzles may be sufficient to dislodge substantial objects directly in the path. See NFPA 12A, <i>Standard on Halon 1301 Fire Extinguishing Systems</i> and NFPA 12B, <i>Standard on Halon 1211 Fire Extinguishing Systems</i> .
7. Carbon dioxide automatic system.	Same as No. 6, except uses carbon dioxide gas. Extinguishes fires by reducing oxygen content of air below combustion support point.	Same as No. 6. Appropriate for service and utility areas. Personnel must evacuate before agent discharge to avoid suffocation. May not extinguish deep-seated fires in ordinary solid combustibles such as paper, fabrics, etc.; but effective on surface fires in these materials. See NFPA 12, <i>Carbon Dioxide Extinguishing Systems</i> .
8. Dry chemical automatic system.	Same as No. 6, except uses a dry chemical powder. Usually released by mechanical thermal linkage. Effective for surface protection.	Should not be used in personnel-occupied areas. Leaves powdery deposit on all exposed surfaces. Requires cleanup. Excellent for service facilities having kitchen range hoods and ducts. May not extinguish <i>deep-seated</i> fires in ordinary solid combustibles such as paper, fabrics, etc.; but effective on surface fires in these materials. See NFPA 17, <i>Dry Chemical Extinguishing Systems</i> .
9. High expansion foam system.	A fixed extinguishing system which generates a foam agent for total flooding of confined spaces, and for volumetric displacement of vapor, heat and smoke. Acts on the fire by: a. Preventing free movement of air b. Reducing the oxygen concentration at the fire c. Cooling.	Should not be used in occupied areas. The discharge of large amounts of high expansion foam may inundate personnel blocking vision, making hearing difficult and creating some discomfort in breathing. Leaves residue and requires cleanup. High expansion foam when used in conjunction with water sprinklers will provide more positive control and extinguishment than either extinguishment system used independently, when properly designed. See NFPA 11A, <i>Standard for Medium and High Expansion Foam Systems</i> .

