Table 9.16.: Clean Agent Systems Requirements

ITEMS	REQUIREMENTS
13. NOZZLES	i. The selection of the type of nozzles, numbers, spacing etc., shall be as per the manufacturer's design specifications. ii. Discharge nozzles shall be listed for their intended use. Listing criteria shall include flow characteristics, area coverage, height limits, and minimum pressures. Discharge orifices and discharge orifice plates and inserts shall be of a material that is corrosion resistant to the agent used and the atmosphere in the intended application. iii. Special corrosion-resistant materials or coatings shall be required in severely corrosive atmospheres. iv. Discharge nozzles shall be permanently marked to identify the manufacturer as well as the type and size of the orifice. v. Where clogging by external foreign materials is likely, discharge nozzles shall be provided with frangible discs, blowoff caps, or other suitable devices. These devices shall provide an unobstructed opening upon system operation and shall be located such that they will not injure personnel.
14. FIRE DETECTION AND ALARM	i. Automatic detection shall be by any listed method or device capable of detecting and indicating heat, flame, smoke, combustible vapors, or an abnormal condition in the hazard, such as a process trouble, that is likely to produce fire. ii. The fire detection, actuation and alarm system shall comply with **Chapter 8. Fire Detection and Alarm Systems.** iii. Clean agent discharge shall be automatic. However, additional manual release stations shall be provided. iv. All devices shall be located, installed, or suitably protected so that they are not subject to mechanical, chemical, or other damage that would render them inoperative. v. Audible and visual pre-discharge alarms shall be provided within the protected area to give positive warning of impending discharge. The operation of the warning devices shall be continued after agent discharge until positive action has been taken to acknowledge the alarm and proceed with appropriate action. vi. Abort switches, where provided, shall be located within the protected area an near the means of egress for the area. The abort switch shall be of a type that requires a constant manual pressure to cause abort. In all cases the normal and manual emergency control shall override the abort function. Operation of the abort function shall result in both audible and distinct visual indications of system impairment. The abort switch shall be clearly recognizable for the purpose intended.
15. TIME DELAYS	i. For clean agent extinguishing systems, a pre-discharge alarm and time delay, sufficient to allow the personnel evacuation prior to discharge, shall be provided. ii. Time delays shall be used only for the evacuation of personnel or to prepare the hazard area for discharge. iii. Warning and instruction signs at entrances to and inside protected areas shall be provided.

Figure 9.41.: Warning Signs Outside Clean Agent protected Area