

## **SERVICE VERSUS REMOVAL OF OBSOLETE COMMERCIAL KITCHEN PRE-ENGINEERED FIRE SUPPRESSION SYSTEMS**

The members of the Fire Equipment Manufacturers' Association (FEMA) are in the business of providing the very best design & system hardware for fire control and extinguishment. Commercial Kitchen Wet Chemical Pre-Engineered Fire Suppression Systems are a critical component in a balanced fire protection plan. These systems are a proven tool when used in the beginning stages of a fire. They significantly minimize the risk of death, injury, and property loss. Manufacturers invest heavily in research and development to find an optimum combination of design characteristics, hardware, and extinguishing agent. Operator safety, fire control, extinguishment performance, and system design are the primary concerns as Pre-engineered Systems are brought to the market.

The members of the National Association of Fire Equipment Distributors (NAFED), other independent qualified fire equipment distributors, and fire protection professionals know that an essential part of good fire protection is maintaining equipment so that it will be operational any time an emergency occurs. The protection of life and property should never be compromised. Therefore, the design, installation, service, and maintenance of Commercial Kitchen Wet Chemical Pre-engineered Fire Suppression Systems must be done according to published recognized standards and the manufacturer's instructions.

Questions sometimes arise about maintaining older kitchen pre-engineered systems manufactured by companies no longer in business (such as System Master, Reliable, Safety First, and others), systems that have been declared obsolete by existing manufacturers, or systems for which replacement parts or recharge agent are no longer available.

History has shown us that the use of components not specified in the manufacturers' installation manual or recognized by the listing agency as part of a pre-engineered systems listing can cause dangerous and even life threatening results. Pressure relief devices, safety disks, gauges, o-rings, and valve stems are made to exact tolerances, as are control heads, detection devices, manual remotes, and emergency shut-offs. Discharge nozzles are designed and matched to chemical characteristics to give measured flow rates and discharge pressures. System agent cylinders must be compatible. Agent quality and chemical characteristics are unique to each system manufacturer. Non-listed agents may produce different flow characteristics and have been shown to fail to discharge effectively.

Agents must be tested with each individual system design and hardware by a nationally recognized testing laboratory to assure that required discharge times, discharge flow rates, nozzle discharge patterns and fire extinguishing performance are acceptable. End-users must

be able to count on the listed performance of a pre-engineered system for their safety. FEMA offers the following information to help clarify when a pre-engineered system should no longer remain in service due to its lack of a recognized listing.

### **CODES & STANDARDS**

There are legal requirements that call for the installation and maintenance of “listed” Commercial Kitchen Pre-engineered Fire Suppression Systems. Most states have adopted NFPA 96, NFPA 17A, and NFPA 17 through their Building, Mechanical and Fire Prevention Codes. If a pre-engineered system is no longer considered “listed”, it cannot be used to satisfy the requirements of Federal or State Codes. FEMA members design Commercial Kitchen Pre-engineered Fire Suppression Systems according to Underwriters Laboratories Inc. (UL). Commercial Kitchen Pre-engineered Fire Suppression Systems are tested for performance per ANSI/UL 300. The combination of design characteristics, hardware, and agent are incorporated as part of a pre-engineered systems listing.

The 2002 edition of NFPA 17A Standard for Wet Chemical Extinguishing Systems states:

- (4.1)* Only system components referenced or permitted in the manufacturer’s listed installation and maintenance manual or alternate components that are listed for use with the specific extinguishing system shall be used.
- (4.6.1)* The type of wet chemical used in the system shall be listed for the particular system and recommended by the manufacturer of the wet chemical system. Wet chemical solutions of different formulations or different manufacturers shall not be mixed.
- (5.1.1)* Wet chemical fire extinguishing systems shall comply with standard UL 300.
- (7.3.1)* A trained person who has undergone the instructions necessary to perform the maintenance and recharge service reliably and has the applicable manufacturer’s listed installation and maintenance manual and service bulletins shall service the wet chemical fire extinguishing system 6 months apart as outlined in 7.3.2.
- (7.4.2)* Systems shall be recharged in accordance with the manufacturers’ listed installation and maintenance manual.

Additionally, the 2001 Edition of NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations states:

- (10.1.1)* Fire-extinguishing equipment for the protection of grease removal devices, hood exhaust plenums, and exhaust duct systems shall be provided.
- (10.2.1)* Fire-extinguishing equipment shall include both automatic fire-extinguishing systems as primary protection and portable fire extinguishers as secondary backup.
- (10.2.3\*)* Automatic fire-extinguishing systems shall comply with standard UL 300, Standard for Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas, or other equivalent standards and shall be installed in accordance with their listing.
- (12.1.2.2\*)* Cooking appliances requiring protection shall not be moved, modified, or rearranged without prior reevaluation of the fire-extinguishing system by the system installer or servicing agent, unless otherwise allowed by the design of the fire-extinguishing system.

Commercial Kitchen Pre-engineered Fire Suppression Systems must be listed. NFPA defines “listed” as “equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.”

In recent correspondence, which is attached, Underwriters Laboratories clarified that an extinguishing system would not be considered listed unless that system was serviced and maintained in accordance with NFPA 96, NFPA 17A, and NFPA 17, the instructions on the nameplate, and the manufacturer’s manual referenced on the nameplate. When the appropriate service part(s) or agent for recharging are no longer available for a specific model UL Listed extinguishing system unit, the Listing for that system unit cannot be maintained in accordance with the manufacturer’s manual, NFPA Standards, and therefore, would not be considered UL Listed.

#### **LIABILITY**

Liability for servicing Commercial Kitchen Pre-engineered Fire Suppression Systems, particularly those manufactured by companies that have long been out of business, rests solely with the system service company and its components supplier. No one else is around to answer questions either in or out of court. Only the assets and insurance policies of the system service company and perhaps the end-user are available to back up any problems should an incident occur. Given the age and antiquated design of some pre-engineered systems, it is logical that problems are more likely to arise with older, outdated hardware than with newer equipment that meets current design standards, as well as current Building, Mechanical and Fire Codes. Warranties, even if the manufacturer of the system hardware is still in business, have long since expired. An older system could have been manufactured by a quality conscious manufacturer that is still in business, but that same manufacturer recommends the system be removed from service and is no longer making replacement parts available. Service companies that use manufacturer recognized components and agents as specified in the system installation manual and the listing agencies published listed components directory, protect their license, help avoid claims against their products liability insurance policy, and protect their good reputation and public trust.

#### **ANTIQUATED COMMERCIAL KITCHEN FIRE SUPPRESSION SYSTEMS**

In today’s tight labor market with costs for energy, insurance, vehicles, and real estate soaring, it is a mistake to assume that labor-intensive service work on antiquated Commercial Kitchen Pre-engineered Fire Suppression Systems is always profitable. Without using some form of Activity Based Costing, it is difficult to determine exact costs of service. A 25-year-old pre-engineered system that no longer meets the current code requirements cannot be maintained in accordance with NFPA Standards or no longer has a manufacturer supporting it should be considered for replacement. Additionally, dry chemical systems are no longer approved for cooking hazards. Any labor or service work performed on these type systems is wasted money for both the service company and the end user.

Many end-users have a policy regarding replacement costs. If the cost of repairs, updates, or service work exceed a certain percentage (often 50%) of the cost to replace the equipment, they would rather replace it and take advantage of current design technology, as well as a new

warranty. However, if service is performed no one can be assured of the system's performance should it be called upon in a fire situation. At the end of the day, the end-user still has a 25-year-old pre-engineered kitchen system that doesn't meet the needs of the current cooking hazard, local, and state Building, Mechanical and Fire Codes or its UL Listing. If a service company uses part(s) or agent not approved:

What happens if the system fails to operate?

What happens if the system fails to discharge properly?

What happens if someone is injured?

**Conclusions** There are Commercial Kitchen Pre-engineered Fire Suppression Systems in the marketplace that should be removed from service because they are obsolete, are no longer supported by a manufacturer, do not meet current code requirements, have lost their UL Listing, or are just too costly to update and maintain. This should be done first and most importantly to insure life safety. FEMA members are in the business of protecting life and property. Building, Mechanical and Fire Codes require APPROVED and LISTED pre-engineered systems for code compliance. Federal requirements require contents in a system container to match the nameplate. Underwriters Laboratories Inc. requires servicing to be performed using parts and recharge agents that will maintain the pre-engineered systems listing. Improper parts or agent will cause the system to lose its status as UL Listed. By removing outdated or obsolete pre-engineered systems, customers get new equipment that meets current standards. Most importantly, safety to life and property is maximized. Both the customer and the service company will benefit from a fresh factory warranty and a Commercial Kitchen Pre-Engineered Fire Suppression System designed to meet their current cooking hazard and the liability issue discussed earlier is avoided.

**Prepared by the members of FEMA's Systems Division**

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