

FREEZING OF WET CHEMICAL SYSTEMS

ISSUE

Manufacturers of relocatable industrial accommodations have raised a concern with the problem of freezing wet chemical agent in kitchen fire suppression systems and portable extinguishers. The freezing problem occurs in winter months when industrial camp kitchen units are stored outdoors or are subject to high wind chill factors when transported to various locations.

BACKGROUND

In 1995, Underwriters Laboratories Inc. (UL) and Underwriters Laboratories of Canada (ULC) introduced two new standards affecting automatic fire suppression systems used to protect commercial cooking equipment.

Manufacturers testing their equipment to these new standards discovered that dry chemical powder systems did not pass the standards and cannot be installed to protect commercial cooking equipment. Manufacturers are no longer producing dry chemical powder fire suppression systems for commercial cooking equipment. Only wet chemical fire suppression systems that meet the testing and listing requirement of UL-300 and ULC/ORD 1254.6 would be acceptable for equipment installed under ABC 2006.

In addition to the new standards for these automatic suppression systems, a 'K' rated wet chemical portable fire extinguisher is also to be installed in the vicinity of commercial cooking equipment.

RECOMMENDATION

It appears the UL and ULC standards did not contemplate having wet chemical suppression systems and wet chemical portable fire extinguishers subject to freezing conditions. Special precautions, such as transporting and storing the wet chemical cylinder, carbon dioxide cartridge and any wet chemical portable fire extinguishers in a heated environment, need to be taken when relocatable accommodations containing wet chemical fire suppression systems and extinguishers are shut down or transported during freezing conditions. Until such time as manufacturers can overcome the freezing problem, special procedures are necessary to safeguard this equipment.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.

CODE REFERENCES

1. Clauses 3.2.5.18.(1)(a) & (b) state:

3.2.5.18. Protection from Freezing

- 1) Equipment forming part of a fire protection system shall be protected from freezing if
 - a) it could be adversely affected by freezing temperatures, and
 - b) it is located in an unheated area.

2. Sentence 6.2.2.6.(1) states:

6.2.2.6. Commercial Cooking Equipment

- 1) Systems for the ventilation of commercial cooking equipment shall be designed, constructed and installed to conform to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," except as required by Sentence 3.6.3.1.(1) and Article 3.6.4.2.

3. Sentence 10.6.4.1.(1) states:

10.6.4.1. Cooking Equipment Ventilation System

- 1) Except as provided in Article 10.6.4.2., every kitchen containing commercial cooking equipment used in processes producing smoke or grease-laden vapours shall be equipped with a mechanical exhaust system conforming to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

4. Sentences 2.6.1.9.(1) & (2) of Division B of the Alberta Fire Code 2006 state:

2.6.1.9. Commercial Cooking Equipment

- 1) Commercial cooking equipment exhaust and fire protection systems shall be designed and installed in conformance with the Alberta Building Code 2006.
- 2) Except as required in Sentences (3) to (5), the use, inspection and maintenance of commercial cooking equipment exhaust and fire protection systems shall be in conformance with NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."