

**STATE OF MINNESOTA  
DEPARTMENT OF PUBLIC SAFETY  
FIRE MARSHAL DIVISION**

**STATEMENT OF NEED AND REASONABLENESS**

In the matter of Proposed Amendments to Rules of the Department of Public Safety Governing the Minnesota State Fire Code, Minnesota Rules, Chapter 7510.

**I. INTRODUCTION**

The above captioned rules are amendments to existing rules of the Department of Public Safety. The rules were originally adopted October 3, 1975. The last time they were amended was June 29, 1998.

Pursuant to Minnesota Statutes, section 299F.011, the Commissioner of Public Safety through the State Fire Marshal Division is charged with the responsibility of promulgating a statewide fire code. It is the duty of the commissioner to amend the code to maintain the most up-to-date standards consistent with nationally recognized good practice establishing minimum safeguards of life and property together with regulating the use and maintenance of buildings, structures and premises.

The most recent version of the state fire code, effective June 29, 1998, Minnesota Rules, parts 7510.3510 to 7510.3710, adopted by reference the 1997 edition of the *Uniform Fire Code* (UFC) with certain amendments. The proposed rules amend the existing rules to adopt and make amendments to the 2000 *International Fire Code* (IFC) as promulgated by the International Code Council of Falls Church, Virginia. The IFC is one of three model fire prevention codes that presently exist in the United States.

The 2000 IFC is the result of efforts by three model code organizations to consolidate their individual sets of codes into a single national set of codes. These efforts were motivated and encouraged by many in the building and design industry who believed it would be in the public's best interest, as well as to the professional advantage of architects, engineers and other professionals, to provide uniformity in building and fire code requirements throughout the United States. In 1994, these three organizations, Building Officials and Code Administrators, International (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI), established the International Code Council (ICC). That organization was created with a single goal in mind, as stated in its mission, "to promulgate a comprehensive and compatible regulatory system for the built environment, through consistent performance-based regulations that are effective, efficient, and meet government, industry and public needs." In 1999, the first set of these codes was issued. BOCA, ICBO and SBCCI are no longer producing their respective codes.

The decision to adopt the IFC was primarily based on a recommendation to the State Fire Marshal from the Minnesota State Fire Chiefs Association (MSFCA) Code Committee. That committee is comprised of members of the MSFCA as well as state and local fire and building officials. The committee conducted an exhaustive evaluation, taking over a year to complete, that compared the current state fire code with the IFC and the *NFPA Fire Prevention Code* (NFPA 1) as promulgated by the National Fire Protection Association of Quincy, Massachusetts. While both the IFC and NFPA 1 were found to have their strengths and weaknesses, major factors resulting in the MSFCA Code Committee's recommendation to adopt the IFC were its close parallel to the requirements found in the 1997 UFC and its compatibility with the new state building code proposed to be adopted by the Department of Administration, State Building Codes and Standards Division – the 2000 *International Building Code*.

The State Fire Marshal considered retaining the state's current fire code (i.e. the 1997 UFC), but found that document and its subsequent 2000 edition to not be fully compatible with the proposed new building code. In addition, the UFC is scheduled to be consolidated with NFPA 1 with the 2003 edition of those codes.

Another major factor in the selection of the IFC as Minnesota's fire code was a cooperative agreement signed between the Departments of Administration and Public Safety as well as the State Building Codes and Standards Division and the State Fire Marshal Division on January 25, 2000. One of the goals of this agreement, which was an outgrowth of a 1999 report by the Office of the Legislative Auditor: *State Building Code*, was to strengthen cooperation between the two agencies, including a coordinated adoption of a compatible set of statewide building and fire codes. Incompatible codes have created many problems in the past for architects, contractors and building owners trying to comply with conflicting code requirements.

The need to update the state fire code arises because of substantial changes made to the model national codes that are incorporated into Minnesota's code. These codes have been researched and drafted by national bodies of experts in the fire protection field. They are updated and amended at 3-year intervals based on recommendations received from knowledgeable fire and building officials, architects, engineers and representatives from the various industries to which the codes apply. The intent is to produce up-to-date codes that will not only achieve a reasonable degree of safety to life and property, but also allow for the use of modern methods, devices, materials and techniques that will tend in part to lower construction and maintenance costs.

The proposed rules establish minimum uniform requirements for the state of Minnesota by adopting the entire model code and making amendments to it in order to be consistent with Minnesota laws and rules, as well as to address fire safety concerns that are specific to the state.

A number of the amendments contained in these rules are made to conform to the new state building code proposed to be adopted by the Department of Administration, State Building Codes and Standards Division – the 2000 *International Building Code* (IBC). The intent is to correlate the provisions of the state fire code with those in the state building code, so that conflicts are eliminated. The intent of the ICC, which publishes both the IBC and the IFC, was that these documents be correlated. The ICC provides a total package of codes (i.e. Building, Fire, Residential, Mechanical, etc.) which are intended to give jurisdictions adopting these codes a complete and comprehensive set of codes that are compatible with each other.

Other amendments have been made at the request of the MSFCA Code Committee. That committee was heavily involved throughout the drafting process and many of its comments and suggestions are reflected in the proposed rules. Some amendments have been made in an effort to reduce the complexity of the fire code adoption process at the local level. Others have been made to help local units of government by making the fire code both less complex and easier to enforce. In addition, some of the amendments are intended to assist local communities in addressing their unique fire safety concerns. This is consistent with Minnesota Statutes, section 299F.011, subdivision 4, which allows local units of government to adopt fire safety regulations which are in addition to or more stringent than the state fire code, as long as those regulations are uniform for each type of building covered and do not exceed the applicable requirements of the state building code.

## II. ALTERNATIVE FORMAT

Upon request, this Statement of Need and Reasonableness can be made available in an alternative format, such as large print, Braille, or cassette tape. To make such a request, please contact: Ms. Patricia Bell at Department of Public Safety, Fire Marshal Division, 444 Cedar Street, Suite 145, St. Paul, MN 55101-5145, (651) 215-0522, **Fax:** (651) 215-0525, and **email:** Pat.L.Bell@state.mn.us. TTY users may call the Division at (651) 282-6555.

## III. STATUTORY AUTHORITY

The Department's statutory authority to adopt these rules is set forth in Minnesota Statutes, section 299F.011, subdivision 1, which provides: "The commissioner of public safety through the division of fire marshal may promulgate a uniform fire code and make amendments thereto in accordance with the administrative procedure act in chapter 14." The adoption of the IFC (as one of the nation's model fire prevention codes) satisfies additional language in Minnesota Statutes, section 299F.011, subdivision 1, which states: "The code and its amendments shall conform insofar as practicable to model fire codes generally accepted and in use throughout the United States, with consideration given to existing statewide specialty codes presently in use in the state of Minnesota."

Under this statute, the Department has the necessary statutory authority to adopt the proposed rules. The time limit on authority to adopt rules contained in Minnesota Statutes, section 14.125 does not apply in this case because the authority to adopt the rules was granted prior to January 1, 1996. Section 14.125 only applies to rules adopted under new rulemaking authority.

## IV. REGULATORY ANALYSIS

### 1. Persons Who Probably Will be Affected By the Proposed Rules

#### A. Persons Affected Who Will Bear the Costs of the Proposed Rules

Property owners and managers are those who most frequently bear the cost of fire code compliance. Due to the broad impact of the state fire code, it is impossible to identify all classes of persons who may be impacted from a cost standpoint. A sincere attempt was made during the development of these rules to minimize the fiscal impact wherever possible, while still maintaining a reasonable level of safety to life and property. Where specific classes of persons are expected to be impacted by a certain section, that class of persons is specifically identified in the rule-by-rule analysis.

#### B. Persons Affected Who Will Benefit From the Proposed Rules

The classes of persons who may benefit from these rules really needs to be considered from a global perspective, since the rules are intended to establish minimum uniform fire and life safety standards that apply throughout the state of Minnesota. The taxpayers and residents of a community benefit through the reduction of fire loss and its associated impact (higher taxes, loss of tax base, decay of community, etc.). The fire service benefits by not only being able to control its fire safety concerns through fire prevention, but also by having provisions available that assist with fire fighting operations and firefighter safety (e.g. fire department access and water supply, sprinklers and standpipes, controls on hazardous materials, and so on).

The insurance industry potentially benefits through reduced fire losses. In the long term, these reductions can result in lower insurance premiums to the insured. The fire protection industry (e.g. sprinkler and fire alarm companies) has also been identified as benefiting from these rules.

The rules also benefit design professionals (i.e. architects and engineers) by having a uniform set of minimum design standards that apply throughout the state. In addition, there is some benefit to the construction industry, which is often called upon to make the physical repairs required by the various provisions of the code.

Occupants, residents and guests also benefit from an enhanced level of fire and life safety in the various buildings and premises they frequent, live, stay and work. Where a specific class of persons is expected to benefit by a certain section, that class of persons is specifically identified in the rule-by-rule analysis.

The Department of Public Safety's Fire Marshal Division has been working with various organizations and associations on the development of these rules, including the following:

- Minnesota State Fire Chiefs Association
- Fire Marshals Association of Minnesota
- Minnesota Building Officials
- State Building Codes and Standards Division

## **2. Costs to Agencies and Anticipated Effect on State Revenues**

### **A. Probable Costs to the Department of Public Safety to Implement and Enforce**

There will be no additional costs to the State Fire Marshal Division, which is the primary state enforcement agency for these rules, due to the implementation and enforcement of the proposed rules. Because the rules are adopting a nationally recognized fire prevention code, by reference, and making amendments to that code, the costs to the agency of implementing and enforcing the proposed rules is significantly reduced.

### **B. Probable Cost to Other Agencies to Implement and Enforce**

Other state agencies are impacted by the state fire code, particularly those that own or construct facilities, equipment or systems that are regulated by the code. As indicated earlier, most of the proposed rules are intended to lessen the impact of the code, so these rules would not represent an increase in the cost to other state agencies.

### **C. Anticipated Effect on State Revenues**

There is no anticipated effect on state revenues.

## **3. Determination of Less Costly or Less Intrusive Methods**

Most of the proposed amendments to the model code are intended to lessen fiscal impact or be less intrusive. The specific reason for each amendment is outlined in the rule-by-rule analysis.

## **4. Alternate Methods Considered and Rejected**

The State Fire Marshal received requests from the public asking for inclusions and amendments to the state fire code. These were considered and discussed throughout the development and adoption process. Many of the requests were incorporated into the proposed rules and are identified in the rule-by-rule analysis. The following is a synopsis of the requests that were considered and rejected:

- A request was received from some local building officials to delete the definition of "corridor" found in the current state fire code. This definition was amended into the state fire code with the adoption of the 1997 UFC on June 29, 1998, because it was found that there was a significant lack of consistency and uniformity throughout the state on what constituted a corridor. Differing

interpretations led to significant problems for design professionals and building owners. Because of this, the State Building Codes and Standards Division has a policy defining corridors. The proposed deletion of the definition was opposed by representatives of Minnesota's architects, and even local building officials were split on the issue. To maintain statewide uniformity and consistency, this change was not made. The proposed rules editorially relocate the definition to Chapter 10 of the IFC to replace a definition that was considered unacceptably vague.

- The fire marshal of a metro city requested that the code be amended to require the installation of automatic sprinklers in all Group R Occupancies. Such a change would require automatic sprinkler protection in all residential occupancies except one- and two-family dwellings and townhouses. While the State Fire Marshal Division is an avid advocate of automatic fire sprinkler systems, this change was not made, as it was felt that the IFC already contains significant provisions for sprinklering of Group R Occupancies. In addition, the new code allows automatic sprinkler systems to be used as an alternate to a significant number of code requirements. It was felt that this would result in many building owners installing sprinkler systems on a voluntary basis to benefit from the alternates. As another avenue, local municipalities that enforce the State Building Code and desire to have additional sprinkler requirements can adopt optional Appendix Chapter 1306, which specifies lower sprinkler thresholds for Group R Occupancies. This change was also strongly opposed by the Builders Association of Minnesota.
- The supervisor of the State Fire Marshal Division's School Inspection Team requested that an amendment be added requiring that existing school buildings be required to comply with NFPA 101, *Life Safety Code*. NFPA 101 was an integral part of the state's fire code until the 1991 UFC was adopted August 23, 1993, at which time the general reference to it was deleted at the request of the state's fire service. The fire service had been arguing strongly for quite some time that NFPA 101 should no longer be referenced, as it contained conflicts with the state building code and caused local jurisdictions to spend funds unnecessarily to buy additional code books. It was decided, therefore, to delete the general reference to NFPA 101, but retain a specific reference for healthcare and correctional facilities only, since those facilities were required to comply with that standard in order to meet national accreditation requirements. The requested change was not made, as it was felt that the fire service's original objections were still valid. Another reason given for the adoption of NFPA 101 was that doing so would eliminate the need for many state amendments to the IFC. A review of the proposed amendments, state statutes and NFPA 101 revealed that not to be the case.
- A representative of the National Multi-Housing Council requested an amendment that would allow smoke detectors to be omitted in apartment building bedrooms that are protected with automatic sprinklers. Experience and full-scale testing has shown for years that a significant number of fires produce detectable quantities of smoke prior to detectable levels of heat sufficient to activate a heat detector or sprinkler head. Analysts at the National Institute of Standards and Technology have shown time and again that the best way to reduce the number of deaths from fire in residential occupancies is to have **both** automatic fire sprinklers and automatic smoke detectors. As a result, this change was not made. On the other hand, however, another amendment requested by the National Multi-Housing Council to exempt smoke detectors in sprinklered apartment buildings from the requirement for battery back-up was found to be justified and was made (see amendment to IFC Sec. 907.2.10.2).
- A representative of the retail industry asked that the code be amended to delete the requirement for an emergency voice/alarm communication system in covered mall buildings and that a public address system be allowed to be used instead. This change was not made, due to the size of these occupancies and the need to protect the safety of the large numbers of people that occupy them. No national standards could be found specifying requirements for location and installation of speakers, clarity of voice annunciation, nor for the listing or maintenance of public address

systems. National standards do, however, exist for emergency voice/alarm communication systems. Such systems provide a vital and reliable communication link in these buildings, not only in case of fire, but for other types of emergencies as well.

- The Minnesota Petroleum Marketers Association requested that the chapter in the IFC dealing with flammable and combustible liquids be deleted and NFPA 30, *Flammable and Combustible Liquids Code*, be adopted by reference in its place. This change was not made. Chapter 34 of the IFC contains the requirements applicable to the storage, use and handling of flammable and combustible liquids. The provisions found in Chapter 34 are primarily based on those found in Article 79 of the current state fire code. The requirements in Article 79 of the UFC are well established and time-tested to provide an acceptable minimum level of safety in the storage, use and handling of flammable and combustible liquids. What Chapter 34 of the IFC does, however, is blend the provisions of UFC Article 79 with those of NFPA 30 by referencing NFPA 30 for such things as design and fabrication of piping system components and design, construction, installation and location of tanks. A wholesale replacement of Chapter 34 with NFPA 30 would not be advisable without a detailed analysis and comparison of the two documents, which there was insufficient time to conduct due to the timing of the request.

## **5. Probable Costs of Compliance**

As discussed earlier in the section dealing with fiscal impact, there are costs associated with compliance with the state fire code. It is difficult, if not impossible, to assign a cost/benefit to preventing an incident from occurring or, if one does occur, keeping the amount of damage and potential for death or serious injury to a minimum.

There are three main goals of the state fire code and fire prevention in general: life safety, property protection and protection of the property's mission (maintaining the continuity of operations). According to national statistics, most businesses that experience a serious fire do not rebuild on the same site. In addition, Minnesota state law allows such properties to be assessed taxes at a lower rate (similar to undeveloped land). Based on these considerations, other benefits of fire prevention are to prevent the erosion of local tax base and to keep employers operating within a community or within the state. Fire prevention efforts must, therefore, be looked upon as a long-term investment; comparisons can be made to seat belt use and anti-smoking campaigns.

The issue of fiscal impact to the property owner versus the taxpayer or community at large is another consideration that needs to be addressed when discussing the fiscal impact of the state fire code. While the code does impose requirements that may be costly to the individual property owner, it does so not only to protect that individual and persons occupying the property, but also to ultimately reduce the burden of fire protection on the community as a whole. The question becomes: Is it in the best interests of the community to, for example, require that a property owner provide automatic fire sprinkler protection for a newly constructed building instead of having the taxpayers of the community pay for public enhancements to the city's infrastructure (more fire hydrants and larger water mains) and response capabilities (more fire stations, apparatus and firefighters)?

While there are additional costs of complying with the proposed rules, these costs are expected to be very limited and of insignificant value. In fact, as stated previously, many of the proposed rules are intended to lessen the fiscal impact of the code, while still maintaining an acceptable minimum level of fire/life safety.

## **6. Differences Between the Proposed Rules and Existing Federal Regulations**

There are no existing federal regulations that specifically address fire safety and fire prevention efforts within buildings that are privately owned. There are, however, U.S. Department of Health

and Human Services regulations, found in 42 CFR 483.70(a), applicable to healthcare facilities that receive federal Medicare and Medicaid monies. These regulations do not replace, but are applied over and above requirements found in state building and fire codes. In addition, the U.S. Department of Housing and Urban Development promulgates federal rules, found in 24 CFR 3280, that preempt state laws and codes in the construction of manufactured homes and buildings. Finally, while there has been some change in philosophy in recent years, the federal government has historically exempted federally owned buildings and facilities from state building and fire codes. With these exceptions, the federal government has historically regarded fire protection, including fire code enforcement efforts, as the role of state and local units of government.

While federal Medicare/Medicaid regulations require compliance with the 1985 edition of NFPA 101, the proposed rules incorporate the 1997 edition of that standard for existing healthcare facilities. The proposed rules carry forward current standards found in an amendment made with the adoption of the 1997 UFC June 29, 1998 (see current Minnesota Rules, part 7510.3710, subpart 3). It was necessary at that time to incorporate the 1997 edition of NFPA 101 in order to have fire and life safety provisions applicable to healthcare occupancies in the state fire code that were more current (the federal regulations are based on standards that are now over 15 years old). In the interest of protecting the occupants of healthcare facilities, many of whom are not capable of taking action for their own self-preservation in time of emergency, it is reasonable to carry forward provisions that more accurately reflect the newer technologies, building designs and uses found in such occupancies. In addition, the newer standard allows for alternate methods of protection that can be used as equivalencies for compliance with the federal regulations.

## **V. COMMISSIONER OF FINANCE REVIEW OF CHARGES**

Minnesota Statutes, section 16A.1285 does not apply because these rules do not set or adjust fees or charges.

## **VI. PERFORMANCE-BASED RULES**

Minnesota Statutes, section 14.002, requires state agencies to emphasize “superior achievement in meeting the agency’s regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals.” Pursuant to Minnesota Statutes, section 14.131, the agency must describe how it considered and implemented this new policy of performance-based regulatory systems.

The IFC and the amendments proposed to it are based on the application of scientific principles, approved tests and professional judgement, and to the extent possible, are in terms of results rather than requiring specific methods or materials. The fire code uses performance standards wherever possible. In an effort to encourage the use of performance-based designs, a specific amendment is proposed in 7510.3520, subpart 2d which allows them and sets forth specific goals, objectives and acceptance criteria that must be met.

## **VII. NOTICE AND ADDITIONAL NOTICE**

Minnesota Statutes, sections 14.131 and 14.23, require that the Statement of Need and Reasonableness contain a description of the department’s efforts to notify persons or groups who are, or may be, affected by changes to these rules above and beyond the mandatory rulemaking list.

The department has provided notice to all persons or groups who registered to be on the department's mailing list under Minnesota Statutes, section 14.14, subdivision 1. Mailings to this department-wide list were made for the Request for Comments and the Notice of Intent to Adopt.

The Department of Public Safety is comprised of divisions that are different and very diverse. As a result, the department-wide mailing list is not very large. Most interested parties prefer to be placed on specific mailing lists located within each division. To that extent, the State Fire Marshal Division maintains a current mailing list of some 50 interested organizations, groups and persons. The following persons, associations, organizations, and agencies have received copies of the Request for Comments for Planned Amendments to Minnesota Rules, Chapter 7510, as well as the Dual Notice of Intent to Adopt Rules. They were also mailed copies of the proposed rules and Statement of Need and Reasonableness and were notified that both documents are available on the State Fire Marshal Division's web site. They include:

- American Institute of Architects – Minnesota Chapter
- Association of Minnesota Family Child Care Licensors
- Association of Minnesota Counties
- Associated General Contractors of Minnesota
- Builders Association of Minnesota
- Care Providers of Minnesota
- Department of Children, Families and Learning
- Department of Corrections
- Department of Human Services
- Fire Marshal's Association of Minnesota
- Fireworks contractors
- Insurance Federation of Minnesota
- Insurance Services Office
- International Association of Plumbing and Mechanical Officials
- League of Minnesota Cities
- Minneapolis Building Owners and Managers Association
- Minnesota Associated Builders and Contractors
- Minnesota Association of School Maintenance Supervisors
- Minnesota Association of Townships
- Minnesota Building Officials
- Minnesota Department of Health – Facility and Provider Compliance
- Minnesota Health and Housing Alliance
- Minnesota Health Care Engineers Association
- Minnesota Hotel and Lodging Association
- Minnesota Licensed Family Child Care Association
- Minnesota Multi-Housing Association
- Minnesota Petroleum Marketers Association
- Minnesota Propane Gas Association
- Minnesota Resort Association
- Minnesota Retail Merchants Association
- Minnesota State Fire Chiefs Association
- State Board of Electricity
- State Building Codes & Standards Division

Pursuant to Minnesota Statutes, section 14.116, the chairs and ranking minority members of the legislative policy and budget committees with jurisdiction over this subject matter have been given copies of the Request for Comments, Dual Notice of Intent to Adopt, the proposed rules and Statement of Need and Reasonableness.

Finally, the Dual Notice of Intent to Adopt, the proposed rules and Statement of Need and Reasonableness are available via the State Fire Marshal's homepage on the Department of Public Safety web site. The internet address for the department site is: [www.dps.state.mn.us](http://www.dps.state.mn.us).

## VIII. LIST OF WITNESSES

If these rules go to a public hearing, the department anticipates having the following witnesses testify in support of the need for and reasonableness of the rules:

Thomas Brace, State Fire Marshal, Minnesota Department of Public Safety, Fire Marshal Division, 444 Cedar Street, Suite 145, St. Paul, Minnesota 55101-5145.

Robert Imholte, Supervisor, Minnesota Department of Public Safety, Fire Marshal Division, 444 Cedar Street, Suite 145, St. Paul, Minnesota 55101-5145.

Richard Pehrson, Codes Specialist, Minnesota Department of Public Safety, Fire Marshal Division, 444 Cedar Street, Suite 145, St. Paul, Minnesota 55101-5145.

A representative from the Commissioner's Office, Minnesota Department of Public Safety, 445 Minnesota Street, Suite 1000, St. Paul, Minnesota 55101.

A representative from the State Building Codes and Standards Division, Minnesota Department of Administration, 408 Metro Square Building, 121 – 7<sup>th</sup> Place East, St. Paul, Minnesota 55101

Any other employee of the State Fire Marshal Division or the Minnesota Department of Public Safety.

## IX. RULE-BY-RULE ANALYSIS

The need for and reasonableness of each substantive rule is described in the following paragraphs. In order make it easier to track rules that are being carried forward from existing rules, the existing rule parts are identified along with the new rule part designations following the renumbering instructions by the Revisor of Statutes. The existing rule part numbers are identified in parentheses following the new rule part as follows: (Formerly: 7510.XXXX, subp. X).

All of the rules contain changes. Many of the changes, however, are minor renumbering changes made necessary by the new format and numbering system of the IFC. In addition, a number of amendments have been relocated, again, because of the new code format. Although these amendments appear as new language in the proposed rules (identified by underlining), they are not new requirements. Since these renumbering and location changes are primarily editorial in nature and contain no new requirements, the need for and reasonableness of these rules are not addressed in any great detail, other than to identify the affected section(s). These rules are:

New Rule Part (IFC)  
7510.3520, subp. 2c  
7510.3534, subp. 2

Existing Rule Part (UFC)  
7510.3710, subp. 3  
7510.3590, subp. 2

7510.3536, subp. 2	7510.3570, subp. 1
7510.3536, subp. 6	7510.3570, subp. 9
7510.3536, subp. 7	7510.3580, subp. 7
7510.3538, subp. 1	7510.3570, subp. 5
7510.3538, subp. 2	7510.3570, subp. 6
7510.3538, subp. 3 (Sec. 704.2)	7510.3570, subp. 8
7510.3538, subp. 3 (Sec. 704.3)	7510.3580, subp. 8
7510.3538, subp. 4 (705.2.3 Exceptions)	7510.3710, subp. 10
7510.3538, subp. 4 (Sec. 705.3)	7510.3710, subp. 10
7510.3542, subp. 4	7510.3570, subp. 3
7510.3560, subp. 2b	7510.3560, subp. 1
7510.3560, subp. 4a	7510.3710, subp. 7
7510.3560, subp. 28 (Exception)	7510.3560, subp. 16
7510.3580, subp. 17	7510.3710, subp. 5
7510.3611	7510.3660, subp. 1
7510.3675 (Adult Day Care, SLFs)	7510.3540

### **7510.3510. Rules and Standards Adopted by Reference.**

The 2000 edition of the *International Fire Code* (IFC), a nationally recognized model code, is adopted to replace the existing 1997 *Uniform Fire Code* (UFC). Minnesota Statutes, section 299F.011, subdivision 1, specifies that the state fire code shall conform insofar as practicable to model fire codes generally accepted and in use throughout the United States. Although the IFC is a new document, its origin, as explained in the Introduction to this Statement of Need and Reasonableness, springs from a consolidation of three regional model codes that have been used effectively in various portions of the country for decades (i.e. the *Uniform Fire Code*, the *BOCA National Fire Prevention Code* and SBCCI's *Standard Fire Prevention Code*). Seven states (Alaska, Georgia, Idaho, New York, North Carolina, South Carolina and Utah) and over 150 local jurisdictions (i.e. county and municipal) have already adopted the IFC. Others, like Minnesota, are in the process of doing so. This model code takes into account recent technological advances, including newly developed products and materials, as well as new applications of existing products and materials. It also takes into account the latest state of the art in building design, construction and use and the potential hazards and/or benefits that accompany those factors. In addition, the IFC contains a number of provisions that were added as amendments to the UFC, negating the need for some current state amendments. The IFC is designed as a companion document to the 2000 *International Building Code*, which is in the process of being adopted by the Department of Administration as the state building code pursuant to Minnesota Statutes, section 16B.61.

All that said, the adoption of a new model fire code clearly represents a significant change from the *Uniform Fire Code* everyone has grown accustomed to in Minnesota over the past 25+ years. While there are many parallels between the requirements found in the IFC and those in the 1997 UFC, the blending of code philosophies from the three regional fire codes has resulted in a document that is distinctly different from all three. In addition to organization and format, the major differences between the 2000 IFC and the 1997 UFC include:

- The IFC contains specific provisions applicable to existing buildings for such things as protection of vertical openings (e.g. stairs and shafts – see Chapter 7), wall and ceiling finishes (Chapter 8), fire department standpipes and fire alarm systems (Chapter 9), and means of egress (i.e. exits – see Chapter 10). In the 1997 UFC, requirements relating to protection of vertical openings, fire department standpipes and means of egress are located in an optional Appendix I-A, which is adopted as part of the state fire code under current Minnesota Rules, part 7510.3710, subpart 1. In the IFC, however, those requirements are included in the body of the code itself. Under the 1997 UFC, requirements applicable to wall and ceiling finishes and fire alarm systems are enforced by

the State Fire Marshal under the distinct hazard authority granted in Section 102.1 of the 1997 UFC. Again, the IFC includes those requirements in the body of the code. In the end, the change to the IFC will mean very little, if any, change in enforcement in the areas identified, but the advantage of the IFC is that it more clearly spells out what's applicable to existing buildings and facilities and what applies to new only.

- The IFC contains many references to nationally recognized materials, installation and testing standards (e.g. see IFC Sections 3404.2.7, 903.3.1 and 901.6.1). These references can be found throughout the code, but are all listed in Chapter 45. References to standards such as those promulgated by the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Fire Protection Association (NFPA) and Underwriters Laboratories (UL) are in keeping with the philosophy of having the code focus primarily on those items that the inspector will need while on-site conducting an inspection. As such, technical items used by professionals in design and plan check are left out of the code when those items are covered in a referenced standard. Referencing these standards for materials, installation and testing helps to achieve one of the code's main goals – a uniform set of fire/life safety requirements for the entire country.
- IFC Sec. 803 requires that newly installed upholstered furniture and mattresses in healthcare and correctional facilities meet certain minimum fire safety requirements. These requirements are in addition to those specified in the Department of Public Safety's Furniture Flammability Rules [see Minnesota Rules, parts 7510.5500 to 7510.5570], but are identical to those currently applied to healthcare and correctional facilities by virtue of the incorporation of the 1997 edition of NFPA 101 (see Sections 13-7.5 and 15-7.4) into the 1997 UFC [see current Minnesota Rules, part 7510.3710, subpart 3]. As noted below, automatic sprinklers can be used as an alternate method of meeting this requirement.
- In buildings exceeding 10,000 square feet in area per story, IFC Sec. 905.3.2 requires that fire department standpipes be provided where any portion of the building's interior is more than 200 feet of travel, vertically and horizontally, from the nearest point of fire department vehicle access. One of the major benefits of this requirement is the reduction in the amount of hose that must be laid by firefighters attacking a fire. The longer the hose lay, the more time and personnel it takes to deploy the hose. Time is an important element in any successful fire attack. Having an adequate number of personnel is becoming a significant concern as a result of the budget cutbacks being experienced by cities employing full-time firefighters and recruiting problems being encountered by volunteer fire departments. As noted below, automatic sprinklers can be used as an alternate method of meeting this requirement.
- IFC Chapter 10 contains a reprint of the means of egress requirements from the 2000 *International Building Code*. In the 1997 UFC, the means of egress requirements of the building code are accessed by reference (see Sec. 1202 of the 1997 UFC). Having the requirements reprinted makes the code more user-friendly. The requirements in Chapter 10, however, differ from what everyone is used to in Minnesota in two major areas. First, IFC Sec. 1004.2.5 introduces a philosophy called "common path of egress travel" – basically, defined as the distance a person needs to travel before reaching a point where there is a choice of two or more ways to leave a building or area under emergency conditions. The intent of the code is to minimize the potential for a person becoming trapped because there is only one way out of the space. Second, IFC Sec. 1005.2.2 outlines the circumstances under which a single means of egress is allowed from a building. This is a recognition on the part of the code that there are instances where the life safety risk is so minimal that it is reasonable to have just one way out. Under limited conditions, this allowance extends to two-story buildings only. IFC Table 1005.2.2 identifies those buildings where a single means of egress is allowed and is based on five criteria: occupancy type, occupant load, number of stories above ground level, travel distance and the fact that there is no more than one level below the first story.

- The IFC allows greater quantities of hazardous materials in a building than does Article 80 of the 1997 UFC. On the other hand, however, IFC Table 2703.8.2.2 limits the quantities allowed on the upper floors of a building. Restrictions on quantities begin at the fourth floor and above and also apply to levels lower than two stories below ground level. This addresses concerns that current codes are overly restrictive on quantities allowed, but keeps the bulk of such materials on the lower levels of buildings where firefighters can more easily launch an effective and timely attack under emergency conditions.
- The IFC also allows more use of automatic sprinkler systems as an alternate method of complying with the provisions of the code. For example, automatic sprinklers can be used in place of meeting the fire safety requirements for upholstered furniture and mattresses set forth in IFC Sec. 803 and the fire department standpipes required for buildings over 10,000 square feet in area in IFC Sec. 905.3.2. Another example is the longer common path of egress travel allowed in sprinklered buildings by IFC Sec. 1004.2.5 and Table 1010.17.2. This is consistent with the philosophy of the State Fire Marshal Division to encourage the use of automatic sprinkler systems as a cost-effective way of providing an acceptable level of fire and life safety. This is also consistent with Minnesota Statutes, section 14.131, which identifies a determination of whether there are less costly or less intrusive methods for achieving the purpose of the proposed rule as one of six factors for a regulatory analysis that must be included in the Statement of Need and Reasonableness.

Obviously, adoption of the IFC will require an adjustment by regulators and those regulated similar in nature to that experienced here in Minnesota when the state legislature determined back in 1974 that it was in the best interest of the state to replace the numerous local codes and ordinances in existence with a minimum set of fire safety standards that were applicable statewide. In keeping with the very premise on which the IFC is based (i.e. the creation of a uniform set of fire/life safety requirements for the entire country), most of the requirements of the 2000 IFC are proposed to be adopted without change. Where concerns have been raised by interested parties, however, that certain requirements are confusing, or that the cost of compliance with certain provisions outweighs the benefits provided or that the provisions of the IFC conflict with other state codes and regulations, the code is proposed to be amended. Those amendments are reflected in these proposed rules.

### **7510.3520. Chapter 1 - Administration**

Subparts 1 and 2 contain mainly renumbering and reformatting changes to fit into the new code. The title of the code has, however, been changed from “Minnesota Uniform Fire Code” to “Minnesota State Fire Code”. While the state fire code is intended to serve as a minimum code for uniform application throughout the state, it was necessary to remove the word “Uniform” from the title to avoid possible copyright violations. The new title also corresponds with the title of the state building code, which is known as the “Minnesota State Building Code,” Minnesota Rules, part 1300.2050, and is defined as such in Part 7510.3530 of these rules (see definition of “Building Code”).

Subpart 2a amends the code to clarify that where the codes and standards referenced in IFC Chapter 45 in turn reference other standards or documents, those “second generation” references are not considered part of the code. While that is the intent of the code, this amendment is necessary because nowhere in the IFC does it specifically make that statement. Without this clarification, there could be confusion on the part of both regulators and those regulated as to whether or not the secondary references are applicable.

Subpart 2b amends the code to clarify that where other *International Code Council* (ICC) documents are referenced in the IFC, the appropriate state codes shall apply instead. Since the *International Property Maintenance Code* (IPMC) is not being adopted as a statewide code here in Minnesota, the amendment specifies that where that document is referenced, it shall not apply. Should a local jurisdiction decide to

adopt the IPMC, this section would need to be amended at the local level as permitted by Minnesota Statutes, section 299F.011, subdivision 4. The amendments made in this subpart are necessary in order to coordinate the state fire code with other related codes adopted in the state and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1.

Subpart 2c (Formerly: 7510.3710, subpart 3) carries forward an amendment currently found in UFC Appendix I-A dealing with standards applicable to existing healthcare and correctional facilities. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements. It must be noted, however, that the occupancy classifications referenced in the amendment have been modified to correspond to the new occupancy classification system used in the IFC.

Subpart 2d contains new provisions dealing with the issue of performance-based fire and life safety designs. With the emergence of fire protection engineering, new tools and techniques are available to support designs that deal with deviations from the prescriptive requirements of the building and fire codes. This proposed amendment is necessary in order to create a mechanism for code officials to accept performance-based designs (PBD). Up to this point, code officials have accepted PBD by using the alternate materials and methods provisions in the code. Those provisions were not intended to be used in such a way and, in fact, clearly specified that any alternates used must be shown to be equivalent to the prescriptive requirements of the code. As a result, code officials, designers and builders have expressed a growing concern for liability when accepting deviations from the code that go beyond simple alternate methods and materials. The proposed amendment is formatted to assure that an appropriate level of safety is provided by requiring the PBD to address specific fire and life safety objectives and utilize a third party technical peer review when required by the code official. To help ensure coordination between agencies, the amendment requires that designs involving matters regulated by the building code also be subject to the approval of the building official. This amendment is consistent with Minnesota Statutes, sections 14.002 and 14.131, which require that the agency, in developing rules, consider and implement performance-based standards that emphasize superior achievement in meeting the agency's regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals.

Subpart 2e adds a section to the code that clarifies two issues for legal purposes. First, that, although the code official may have missed a violation during an inspection, that cannot be construed to be an approval to violate the code. Secondly, that the code official does not have the authority to grant permission to violate the provisions of the code and that, further, inspections presuming to give that permission are not valid. This amendment carries forward language that has been in the state fire code since the adoption of the 1991 UFC August 23, 1993 (currently found in Sec. 103.3.2.1 of the 1997 UFC). It is also consistent with language found in IFC Sections 105.3 and 105.4.4, which deal with issuance of permits and plan approvals respectively. Similar language can also be found in the state building code.

Subpart 3 carries forward an existing amendment dealing with appeals to the State Fire Marshal. The amendment deletes the appeals language in the code and replaces it with language currently in the rule. It has been editorially relocated to fit into the format of the IFC and contains no new requirements.

Subparts 4, 5 and 6 are repealed because the amendments are no longer necessary. Subpart 4, dealing with service of orders and notices, was repealed in favor of language found in Sec. 109.2.1 of the IFC. The existing amendment was needed in order to allow orders and notices to be mailed to the owner, operator, occupant or other person responsible for a violation of the code. Sec. 109.2.1 now allows for mailing of orders and notices.

The amendment in Subpart 5 was made necessary by the fact that the UFC as written required that applications for permits be made to the “bureau of fire prevention”. Not all local jurisdictions have a bureau of fire prevention. This amendment is no longer necessary since IFC Sec. 105.1.1 now clearly specifies that permits must be obtained from the code official, rather than some generic office that may or may not exist.

Subpart 6 contained an amendment that was necessary in order to make permits optional at the discretion of the local jurisdiction. Again, not all jurisdictions require permits and/or have the resources to do so. This amendment is no longer necessary since IFC Sections 105.6 and 105.7 now accomplish the same thing by authorizing the code official to issue permits, but not requiring the code official to do so.

Subpart 7 amends IFC Sec. 109.3 to clarify that persons found to be in violation of a provision of the code are guilty of a misdemeanor. This amendment is necessary in order to avoid conflicts with Minnesota Statutes, section 299F.011, subdivision 6, and other state laws. The statute states that a person who violates a provision of the code shall be guilty of a misdemeanor. The penalties for misdemeanors are spelled out in Minnesota Statutes, section 609.02. To include the penalties in the fire code would set up the potential for conflict between the code and statute whenever the statute is updated or amended. Sec. 109.3.1 is not intended to be included in this deletion.

### **7510.3530. Chapter 2 – Definitions**

Most of the definitions found in Subparts 1 through 11 are being carried forward from existing rules without amendment. The way the definitions are worded, however, is being editorially changed to fit into the format of the IFC. Other definitions are being deleted, added, amended or modified as follows:

- The definition of “automatic fire detector” is being deleted, as the amendment is no longer necessary. The definition can now be found in the national standard referenced by IFC Sections 907.2 and 907.3 (i.e. NFPA 72). To retain a definition in the rules could lead to conflicts with the national standard upon which designers and installers across the country base their fire alarm installations. To retain the definition in the rules would also be unnecessarily redundant.
- Four definitions are being added:
  1. “Decorative materials”. This definition is being added because the term is used in Part 7510.3542, subpart 5. It is based on the definition of “combustible decorative materials” currently found in Sec. 204 of the 1997 UFC. Without such a definition, the restrictive requirements that apply to decorative materials could be inappropriately applied to such things as ordinary window shades and educational materials. This would be both unreasonable and unnecessary, as such items do not present a significant fire danger.
  2. “Outpatient clinic”. This definition is being added because the term is used in Part 7510.3560, subpart 11a. The definition is based on a combination of related definitions found in current Minnesota Rules, part 1305.0308, subpart 1, and part 4675, but is worded to fit the format of the IFC. The definition is needed to correlate the fire code with the state building code and Minnesota Department of Health regulations and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1.
  3. “Performance-based design”. This definition is being added because the term is used in Part 7510.3520, subpart 2d. It is based on a definition found in a new national standard, the 2001 *International Performance Building Code*. A definition from a national standard is used to be consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1.
  4. “Residential hospice facility”. This definition is being added because the term is used in Part 7510.3560, subpart 2a, and Part 7510.3675. The definition is based on that found in Minnesota Statutes, section 144A.48, subdivision 1, subpart 7, but is worded to fit the format of the IFC. The definition is needed to correlate the fire code with the state building code and Minnesota

Department of Health regulations and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1.

- The definitional language for “aisle” is replaced with a reference to IFC Sec. 1002.1, where a new definition is being added to correlate with the state building code (see 7510.3580, subpart 1c).
- The definitional language found for “chief” in the current rule is editorially relocated to the definition of “fire chief”. This is necessary because the IFC refers to the “fire chief” throughout the code instead of the “chief”.
- The definitional language for “corridor” is replaced with a reference to IFC Sec. 1002.1, where the definition is being editorially relocated to fit the format of the IFC (see 7510.3580, subpart 1c).
- Subpart 8 contains a number of changes to the definitions of Group E, I and R Occupancies. Most of the changes are editorial in nature and are necessary both to fit the format of the IFC and to maintain consistency with the state building code. The classification of supervised living facilities and residential hospices is consistent with Department of Health statutes (see Minnesota Statutes, section 144.50, subdivision 6, and section 144A.48, subdivision 1, respectively). In addition, adult day care and child day care are classified and defined to be consistent with rules of the Minnesota Department of Human Services (see Minnesota Rules, part 9555.9600, subpart 1, and part 9502.0315, subparts 11 and 13, respectively). There are, however, two major changes to the occupancy classification definitions. First, a current amendment classifying certain supervised living facilities licensed prior to April 11, 1983 and meeting the provisions of the 1973 edition of NFPA 101 for lodging and rooming houses as Group R-3 Occupancies is being deleted because it’s outdated. It is very unlikely that there are any facilities remaining that fall within the parameters specified, as they have been updated over the years to comply with more stringent federal certification requirements. Secondly, bed and breakfast facilities containing not more than 5 guest rooms are classified as R-3 Occupancies. That’s the classification under which such occupancies can be found in the current state building and fire codes. Without amendment, the IFC would classify them as R-1 Occupancies (the same classification given to hotels and motels). The amendment is necessary, because it would be unreasonable to start requiring that bed and breakfast facilities comply with the more restrictive requirements specified in the code for R-1 Occupancies.
- The definition of “room” in Subpart 10 is being editorially revised with the deletion of language relating to Liquid Storage Rooms and associated construction requirements found in Sec. 7903.2.3 of the 1997 UFC. These provisions are no longer applicable to the definition of “room” in the IFC.

Subpart 1a amends the code by adding language dealing with definitions not found in the code. The amendment carries forward language currently found in Sec. 201.1 of the 1997 UFC. The current requirement that undefined words take the meaning given in the 1986 Webster’s Dictionary has served the enforcement community very well in the past, especially when reviewing alternates or variances. The amendment benefits those regulated by the code as well, because the language in the IFC as written is quite vague (i.e. terms not defined “...shall have ordinarily accepted meanings such as the context applies.”). Simply using the ordinarily accepted meaning for words that are undefined in the IFC could lead to legal issues as to exactly what a word implies. Without more specific language, disputes regarding the meanings of terms used would likely have to be settled in court. The 1986 edition of Webster’s Dictionary is being retained with the adoption of the IFC to serve as a definitional bridge between the current 1997 UFC and the 2000 IFC.

### **7510.3532. Chapter 3 – General Precautions Against Fire**

Subpart 1 adds a section to the code dealing with storage of rubbish or products being processed or recycled at occupancies performing commercial rubbish handling or recycling. In order to keep enforcement consistent with past practice, this is another amendment that carries forward language that has been in the state fire code since the adoption of the 1991 UFC August 23, 1993 (currently found in

Sec. 1103.2.3 of the 1997 UFC). It is necessary to have some basic requirements dealing with this matter in the code, as fires in rubbish handling and recycling operations are frequent. Poor storage practices have been found to exacerbate the problem. The provisions found in the amendment are inexpensive and serve as a reasonable way to not only control the magnitude of an incident should a fire occur, but also to help ensure proper fire department access to such facilities in time of emergency.

Subpart 2 (Formerly: 7510.3570, subpart 1) deletes provisions in the IFC dealing with open burning, open-flame cooking devices (e.g. barbecues) and LP-gas-fueled cooking devices. The provisions dealing with open burning have been deleted in past code adoptions in order to avoid conflicts with Minnesota Department of Natural Resources regulations addressing the issue (see Minnesota Statutes, section 88.16), which is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. Sec. 307.5, Open-flame cooking devices, is being deleted in deference to an optional appendix chapter found in Part 7510.3710, subpart 11. In past code adoptions it was determined that the issue of barbecues on decks and balconies was better handled at the local level, based on a local fire department's resources and capabilities. In fact, there are a number of jurisdictions that have local ordinances addressing the issue, some more restrictive, others less restrictive than the requirements found in the IFC. For jurisdictions that do not wish to write up their own local ordinances, Optional Appendix H found in Part 7510.3710, subpart 11, can be adopted.

Sec. 307.5.1, LP-gas-fueled cooking devices, is being deleted to avoid conflicts with the national LP-gas standard being incorporated into the code in Part 7510.3670 (i.e. the 2001 edition of NFPA 58). NFPA 58(01), Sec. 3.4.9.2 contains more reasonable provisions that address the main reason for restrictions on the size of containers used on balconies of multi-family dwellings (i.e. to discourage occupants from bringing larger gas cylinders into the building, where they have been found to represent a significant fire hazard).

Subpart 3 deletes a provision of the code that allows the storage of liquid- or gas-fueled vehicles, tools and appliances in residential buildings (provided certain conditions are met). The parking, storage or repair of gasoline or gas-fueled vehicles and equipment in such occupancies has been prohibited by the state fire code for nearly 20 years (i.e. since the adoption of the 1982 UFC April 11, 1983). Allowing this to occur now in say, hotels, motels, apartment buildings and day care homes would significantly compromise the safety of the building occupants, as fires involving flammable liquids and gases spread extremely fast. While the IFC lists four conditions that need to be met in order for this practice to be allowed, neither the State Fire Marshal nor local jurisdictions here in Minnesota have the resources to effectively ensure that those conditions are met.

Subpart 4 amends a section in the code dealing with clearances required between storage and sprinkler head deflectors. The amendment is necessary in order to prevent conflicts with sprinkler listings and the national sprinkler standard incorporated into the code in IFC Sec. 903.3 (i.e. the 1999 edition of NFPA 13). The section being amended requires a minimum of 18 inches clearance. Under certain circumstances, however, NFPA 13 requires a minimum of 36 inches of clearance in order for sprinklers to operate effectively – this is the case for Early Suppression Fast Response (ESFR) and some extended coverage sprinklers. Without the amendment, there could be some confusion as to which clearances are actually required. This could lead to a dangerous false sense of security for a property owner providing only 18 inches of clearances where 36 inches is actually required to maintain adequate protection.

Subpart 5 adds a section to the code dealing with firebreaks between structures and brush, flammable vegetation and forested land. In order to keep enforcement consistent with past practice, the provisions are based on language found in the current state fire code (see Sec. 16 of Appendix II-A of the 1997 UFC). The language is editorially rewritten to fit the format of the IFC. The amendment is necessary in

order to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and to mitigate structure fires from spreading to wildland fuels. Fire in what is being called the urban-wildland interface has been a significant problem for quite some time. While many think of California in this regard, fires that began in forested land and grassland, but ended with the destruction of a number of homes in Anoka County and the Princeton area during the 2000 fire season show that this is a Minnesota problem as well. Even in the Twin Cities metro area, there are many areas that are considered wetlands and preserved forest areas. It's not unusual for homes or commercial businesses to be built right along the border of these areas. It is reasonable to have provisions in the code that the code official can use to keep buildings a safe distance away from areas having the potential to be involved in a fire, especially where the hazard is significant and/or the resources of the local fire department are limited.

#### **7510.3534. Chapter 4 – Emergency Planning and Preparedness**

Subpart 1 adds an exception to the requirement that, where a fire alarm system is present, emergency evacuation drills be initiated by activating the fire alarm system. The exception is for Group A (assembly) and R-1 Occupancies (e.g. hotels and motels), where the code only requires that employees participate in the drills. It is unreasonable to require that the fire alarm be sounded for drills involving the employees only. Frequent sounding of alarms in such occupancies cause unnecessary disruptions and undue alarm to customers and guests and leads the occupants to ignore alarms during real emergencies.

Subpart 2 (Formerly: 7510.3590, subp. 2) carries forward an existing amendment dealing with evacuation procedures to be followed on activation of the fire alarm system or discovery of fire. It has been editorially relocated to fit into the format of the IFC and contains no new requirements.

Subparts 3 and 4 delete language allowing healthcare facilities and group homes to be exempt from the requirement that fire drills be held at unexpected times and under varying conditions. This is totally inconsistent with past practice here in Minnesota and also conflicts with federal standards applicable to healthcare facilities receiving federal Medicare and Medicaid funds. In order to properly prepare the staff of such facilities to handle fire emergencies, it is reasonable to require that, to the extent possible, drills simulate the unusual conditions that occur under actual fire conditions. Announced drills or drills that continually follow the same routine are ineffective in preparing for a real fire emergency. It is oftentimes when employees are forced from their routines that confusion occurs and the potential for serious injury increases.

Subpart 5 adds provisions to the code giving the fire code official language to use to regulate mall widths and kiosks and similar structures in covered mall buildings. The amendments are necessary because, while the current state fire code contains provisions dealing with these issues (see Chapter 35 of the 1997 UFC), they were not included in the IFC. The state building code contains requirements establishing minimum mall widths and construction requirements for kiosks and similar structures. To maintain consistency between codes, the amendments reference the building code. In Minnesota, the building official typically inspects a building only at the time of initial construction or during a major remodel. It falls to the fire code official to conduct routine inspections to ensure that the provisions of the building code continue to be met during the life of the building.

Under normal operations in mall settings, there are many requests from tenants, special activity groups and mall staff to use the clear area in front of the mall opening, open spaces provided as courts and areas around kiosks for various purposes. For example, this space is continuously encroached upon for additional sales area, temporary use for special signage, vehicle displays, special event materials, such as tables and chairs for book signings, fashion shows, walk-a-thons, and food tasting and product samples. Such uses often result in required means of egress becoming obstructed or reduced below the minimum design width. During such events, whether temporary or permanent, it is even more important to

maintain the necessary exit width, due to the increased occupant loads present. This space also serves as open area to reduce the potential for radiant heat transfer between tenant spaces under fire conditions (Because the building code requires no fire-resistant construction between storefronts and the mall itself, no opening protection is provided.).

Kiosks continue to be explored as the break-in storefront for new business. This creates problems as many new kiosk operators try unique sales approaches in a very limited amount of space. Many approaches, such as adding to the size of the kiosks with swing-out product holders, showcases that attach to the sides and storage on the top of the structures add to the problems. Storage of product not on display becomes a problem unless properly monitored. In addition, temporary wiring for displays, cash registers and lighting can quickly become overloaded. As the size and uses of kiosks expand, separation distances become more important in order to protect against fire spread and blocking of exit widths. For these reasons, it is reasonable to include language in the fire code giving the fire code enforcement official the authority to ensure that proper exiting is maintained and fire loading is kept to manageable levels.

#### **7510.3535. Chapter 5 – Fire Service Features**

This rule part adds an exception to the provisions of the code dealing with fire command centers in high-rise buildings (IFC Sec. 509.1). The exception states that fire command centers installed and maintained in conformance with the building code that was in effect at the time the building was constructed shall be considered as complying with the fire code. The amendment is necessary because, during discussions held as part of the code adoption process, it was found that some in the fire service viewed Sec. 509.1 as an operational requirement, which is applicable to existing buildings pursuant to IFC Sec. 102.2. It is not reasonable to require that an existing high-rise building be retrofitted with a fire command center if the code didn't require it when the building was constructed, especially if the building is not equipped with the systems and equipment monitored and used in a fire command center. High-rise buildings constructed since September 9, 1980 (the date the 1979 *Uniform Building Code* was adopted in Minnesota) should already have fire command centers that conform with the major provisions of Sec. 509.1. To require that they be upgraded with additional features would likely not be cost-effective.

#### **7510.3536. Chapter 6 – Building Services and Systems**

Subpart 1 amends the code by adding an exception allowing unlisted heating appliances when proper clearance from combustibles is maintained in accordance with the mechanical code. This amendment is necessary in order to be consistent with past practice here in Minnesota based on the provisions of Sec. 504(c) of the 1991 *Uniform Mechanical Code* adopted pursuant to Minnesota Rules, chapter 1346. Previous state codes and national standards have allowed the use of unlisted heating appliances when determined by the code official to be of substantial construction, properly installed and maintained in good condition. Experience has shown that there are a number of good quality wood stoves, for example, that are not listed by Underwriters Laboratories or other nationally recognized testing laboratories. These appliances have not been shown to create a fire problem if installed correctly and provided with the proper clearances from combustibles that are specified in the mechanical code. It would be unreasonable, therefore, to prohibit their use.

Subpart 2 (Formerly: 7510.3570, subpart 1) deletes provisions in the IFC dealing with incinerators. These provisions have been deleted in past code adoptions in order to avoid conflicts with the state mechanical code (see Chapter 18 of the 1991 *Uniform Mechanical Code*) and Minnesota Department of Natural Resources regulations (see Minnesota Statutes, section 88.16), which contain requirements addressing the issue. This is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1, which requires that consideration be given to statewide specialty codes presently in use in Minnesota when adopting the state fire code.

Subpart 3 deletes a requirement in the code dealing with emergency power for voice communication systems in a section of the code that addresses Group A Occupancies. This amendment is necessary in order to coordinate with another amendment proposed for IFC Chapter 9 (see proposed IFC Sec. 907.2.1). Because the Chapter 9 amendment carries forward current fire alarm requirements for Group A Occupancies (Formerly: 7510.3560, subparts 9, 10 and 11), emergency voice/alarm communication systems are not being required for most Group A Occupancies. It is reasonable, therefore, to remove this requirement in order to prevent confusion. It should be noted, however, that the proposed Chapter 9 amendment requires emergency voice/alarm communication systems in certain unsprinklered Group A Occupancies having an occupant load of 1,000 or more persons. Those systems would be required to be equipped with a secondary (standby) power supply in accordance with the national standard (i.e. NFPA 72) referenced in proposed IFC Sec. 907.2.1.3.

Subpart 4 deletes the provisions in the code dealing with elevator recall. This is necessary in order to prevent conflicts with the state elevator code and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. In Minnesota, elevators fall under the elevator safety standards adopted and enforced by the Department of Administration, State Building Codes and Standards Division (see Minnesota Rules, Chapter 1307).

Subpart 5 amends the provisions in the IFC dealing with commercial kitchen exhaust hoods by replacing the requirements found in IFC Sections 609.1 through 609.7.1 with language carried forward from the current state fire code (see Sec. 1006.1 of the 1997 UFC). The amendment requires that kitchen hood and duct systems be provided and maintained in accordance with the mechanical code. This is necessary in order to prevent conflicts with the state mechanical code and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. The state mechanical code is currently going through the process of being updated. As part of that update, amendments are being considered to the provisions in the model code being adopted that deal with commercial kitchen exhaust hoods. It is reasonable, therefore, to use language in the fire code that makes a generic reference to the mechanical code so that the codes will correlate regardless of which mechanical code is adopted or what amendments are made to it.

Subpart 6 (Formerly: 7510.3570, subpart 9) carries forward an amendment currently found in Sec. 1115 of the 1997 UFC dealing with mezzanines. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements.

Subpart 7 (Formerly: 7510.3580, subpart 7) carries forward an amendment currently found in Sec. 1214 of the 1997 UFC dealing with pedestrian walkways. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements.

### **7510.3538. Chapter 7 – Fire-resistance-rated Construction**

Subparts 1 and 2 (Formerly: 7510.3570, subparts 5 and 6) carry forward amendments currently found in Sections 1111.1 and 1111.2.1 of the 1997 UFC dealing with fire-resistive construction and installation and maintenance of fire assemblies. The amendments have been editorially relocated to fit into the format of the IFC. Only three changes have been made to the language in these subparts as it appears in current rules:

- An exception is added to IFC Sec. 703.1 to allow fire-resistive construction installed and maintained in accordance with the code under which the building was constructed to be considered as complying with the current code, unless the existing conditions are determined to constitute a distinct hazard to life or property. Sec. 703.1 is mainly intended to serve as a maintenance section that the fire code official can use to ensure that required fire protection installed in buildings is

properly restored, repaired or replaced if it has been damaged, breached or improperly altered. It can, however, also be used to require that fire-resistive construction be added to buildings, if it's found that the building did not comply with the code under which the building was constructed. This is consistent with the applicability of the construction and design provisions of the code as outlined in IFC Sec. 102.1, Item 2. The exception is necessary to clarify that it is not the intent of the code to require that all existing buildings be upgraded to meet the fire-resistive construction requirements of the newest building code. It would be unreasonable to require such an upgrade if the building did, in fact, comply with the code that was in effect when it was constructed and the existing conditions cannot be shown to constitute a distinct hazard to life or property.

- A similar exception is added to IFC Sec. 703.2 allowing fire assemblies installed and maintained in accordance with the code under which the building was constructed to be considered as complying with the current code, unless the existing conditions are determined to constitute a distinct hazard to life or property. The reasons for this exception are the same as those for the addition of the exception to IFC Sec. 703.1.
- Language is added to IFC Sec. 703.2 prohibiting the blocking or obstruction of fire and smoke barrier doors and the modification of fire door assemblies. The requirements are taken from Sec. 703.2 as it appears in the IFC and are necessary in order to maintain the effectiveness and integrity of these assemblies.

It should be noted that the language in Subparts 1 and 2 incorporates terminology found in current and past state building and fire codes rather than the terminology used in the new International Codes set. Examples are “occupancy separation” instead of “fire barrier”, “area separation wall” instead of “fire wall” and “fire assemblies” instead of “opening protectives”. The pros and cons of which terminology to use was carefully considered. It was determined that, for this code adoption at least, it would be more reasonable to continue to use terminology that architects, designers, contractors and code officials are used to. This is appropriate since IFC Sections 703.1 and 703.1 are intended to be used to require that fire-resistive construction and assemblies required under previous codes be properly maintained and/or to require that a building be brought into compliance with the code that was in effect when it was constructed. This decision will likely need to be reevaluated the next time the code is updated.

Subpart 3 (Formerly: 7510.3570, subpart 8 and 7510.3580, subpart 8) carries forward current amendments dealing with atria and escalators. The atria language in IFC Sec. 704.2 can currently be found in Sec. 1114 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3570, subpart 8. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements. The escalator language in IFC Sec. 704.3 can currently be found in Sec. 1215 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3580, subpart 8. This amendment, too, has been editorially relocated to fit into the format of the IFC. The only change to the current rule language is the deletion of the first sentence prohibiting the use of an escalator as a required exit. This sentence has been replaced with a reference to IFC Sec. 1010.2, which specifically prohibits the use of escalators as a component of a required means of egress.

Subpart 4 (Formerly: 7510.3710, subpart 10) adds provisions to the code dealing with separation of occupancies and hazardous areas in existing buildings. Although the amendments represent changes to the IFC, they do not add requirements to the state code, as similar requirements existed in previous codes.

Occupancy separation requirements for existing buildings can currently be found in Appendix I-A, Sec. 7.1 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3710, subpart 10. Where the proposed amendment differs from the current code is that instead of requiring occupancy separations for all existing buildings, it only requires occupancy separations for existing buildings containing Group I

(institutional) and Group R (residential) Occupancies. It is necessary to retain separation requirements for Group I and R Occupancies because they require a higher level of protection to ensure at least a minimum level of safety for the occupants of such buildings. Group I Occupancies house occupants that are mostly incapable of taking action for their own self-preservation due to age or infirmity or because they are being detained (e.g. prisons). Statistics not only in Minnesota, but across the nation continually show that fires in structures occur most frequently in residential (Group R) occupancies, a category that includes houses, apartment buildings, dorms and hotels/motels. In 2000, the most recent year for which statistics are available, residential fires accounted for 63% of all structure fires in Minnesota and 44% of the state's total dollar loss by fire.

As for the other occupancies, the new state building code in the process of being adopted by the Department of Administration, State Building Codes and Standards Division contains occupancy separation requirements that are in many instances significantly more restrictive than those found in the current code. To enforce those provisions retroactively across the board in buildings that meet the requirements of the codes that were in effect when they were constructed would not be reasonable.

Hazardous area separation requirements for existing buildings can currently be found in Appendix I-A, Sec. 7.2 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3710, subpart 10. IFC Sec. 705.3 contains no new requirements. The Group R Occupancy references have been editorially revised to correlate with the new classifications used in the IFC. Language has also been added after the word "laboratories" in the first sentence to clarify that the intent is to only require the separation of laboratories containing hazardous materials. Merely calling a space a laboratory doesn't make it a hazardous area. It's how the space is actually used that determines whether a fire separation is needed.

#### **Part 7510.3540 – Adult Day Care Centers and Supervised Living Facilities**

This part is being repealed because the provisions dealing with these facilities have been editorially relocated to Chapter 46 to fit into the format of the IFC (see new Part 7510.3675).

#### **7510.3542. Chapter 8 – Interior Finish, Decorative Materials and Furnishings**

Subpart 1 adds a section to the code dealing with newly installed interior floor, wall and ceiling finishes. The amendment is intended to keep enforcement consistent with past practice and, therefore, carries forward language similar to that found in the current state fire code (see Sec. 1112 of the 1997 UFC). While the IFC already contains requirements applicable to interior finish in existing buildings, it is important to have requirements that can be applied to interior finish installed in buildings constructed after the date of adoption of the fire code as well. Interior finishes undergo constant change, even in new buildings. It is necessary to regulate interior finishes because improper materials have the potential for adding fuel to a fire and have played a significant role in some of the deadliest fires that have occurred in the United States. Thus, the provisions found in the amendment serve as a reasonable way to minimize the potential for rapid fire spread should a fire occur. To maintain uniformity between codes, the amendment requires that interior finishes be in accordance with the building code.

Subparts 2 and 3 delete exceptions that allow clothing and personal effects to be stored in corridors and lobbies of schools and day care facilities if the corridors are protected by a smoke detection system. This is a lessening of the protection required by the current state fire code (see Sec. 1209.2, as amended, of the 1997 UFC). Corridors are a vital component of a building's exit system and must be adequately protected to ensure that they're usable in time of emergency. Early warning, in and of itself, does not provide the necessary level of protection. Clothing and personal effects stored in corridors can contribute to the rapid spread of fire in much the same fashion as interior wall finishes. While smoke detectors provide notification of fire, automatic sprinklers go beyond that by also doing something to control the fire and maintain the integrity of the exit system. If clothing and personal effects, therefore,

must be stored in corridors, it is reasonable to expect that they either be placed in metal lockers or that the corridors be protected with automatic sprinklers.

Subpart 4 (Formerly: 7510.3570, subpart 3) carries forward an amendment currently found in Sec. 1103.3.3 of the 1997 UFC dealing with natural or resin-bearing Christmas trees or decorations. The amendment has been editorially relocated and reworded to fit into the format of the IFC. It contains no new requirements.

Subpart 5 amends the language in the IFC dealing with decorative materials. This is necessary because the IFC, as written, is overly restrictive, even to the extent of controlling photographs and paintings that can be installed in buildings. This would be both unreasonable and unnecessary, as such items do not present a significant fire danger. The amendment instead carries forward requirements for decorative materials that have been in previous state fire codes for Group A and I Occupancies (see Sec. 1103.3.3 of the 1997 UFC and Sec. 25.103(a) of the 1991 UFC). As a correlating amendment, a definition of “decorative materials” was added to the code in 7510.3530, subpart 3a.

Subpart 6 deletes provisions dealing with foam plastics, pyroxylin plastics and materials used as interior trim. Such finishes and decorative materials are also covered in IFC Sec. 806. The requirements in Sec. 805 and 806 seem, at best, to be redundant but, in some cases, conflict. For example, both Sections 805.3 and 806.1.2 have provisions dealing with foam plastics. They contain the same requirements, but are formatted differently. The same holds true for Sections 805.5 and 806.2.3. Both deal with trim, but use different language to address essentially the same issues. It is both reasonable and necessary to delete the sections referenced in Sec. 805 to prevent confusion. The language in Sec. 805.4 dealing with pyroxylin plastics is unnecessary because the proposed amendment to Sec. 805.1 (see Subpart 5 above) requires that all decorative materials be flame resistant or noncombustible. In addition, the language in Sec. 805.4 is so broad that it can be construed to conflict with the provisions of IFC Sec. 4203.

### **Part 7510.3550 – Fire Department Access and Water Supply**

This part, which deals with marking and obstruction of fire lanes, is being repealed. The amendments dealing with these matters are no longer necessary because they are now covered in the code itself. IFC Sec. 503.3 requires the marking addressed in Sec. 904.1 of the 1997 UFC, as amended. IFC Sec. 503.4 contains the obstruction requirements addressed in Sec. 904.2 of the 1997 UFC, as amended. While the sections referenced use the terminology “fire apparatus access road” instead of “fire lane”, the definition of fire apparatus access road includes fire lanes (see IFC Sec. 502.1).

### **7510.3560. Chapter 9 – Fire Protection Systems**

Subpart 1 is being repealed because most of the provisions in this amendment, which covered automatic sprinkler systems, are now addressed by the code in IFC Sec. 903.3. The two exceptions not covered by Sec. 903.3 have been editorially relocated to IFC Sec. 903.3.1 (see 7510.3560, subp. 2b).

Subpart 1a adds an exception to the code allowing annual inspection and testing of fire alarm and fire-extinguishing systems instead of the intervals set forth in the standards referenced in IFC Table 901.6.1. This is necessary because, as written, the referenced standards require quarterly, monthly and even weekly inspection and testing intervals of certain system components. While it’s appropriate to recommend such intervals, it is unreasonable to require them under most circumstances. Some have argued that the code should set forth inspection and testing intervals, while the standards should establish the procedures to be followed for conducting such inspections and testing. This amendment reflects that philosophy. Where the property owner desires to do so or is required to do so by the property’s insurance carrier, or where the code official requires it because of on-going false alarm or reliability problems, the intervals specified in the standards can be followed.

Subpart 2 is an existing amendment currently found in Sec. 1003.2.9.1 of the 1997 UFC dealing with area separation walls and automatic sprinklers. The amendment has been renumbered and wording added to fit into the format of the IFC. It contains no new requirements. It should be noted that the language in Subpart 2 incorporates terminology found in both current and past state building and fire codes and the new International Codes set rather than just one or the other. Examples are “area separation walls” and “fire walls”, and “separate buildings” and “fire areas”. The pros and cons of which terminology to use was carefully considered. It was determined that, for this code adoption at least, it would be more reasonable to continue to use terminology that architects, designers, contractors and code officials are used to, but add the new terminology as well. This is appropriate since IFC Sec. 903.2.8.1 is intended to apply to new construction. This decision will likely need to be reevaluated the next time the code is updated.

Subpart 2a adds a requirement for automatic sprinkler systems in residential hospice facilities. This amendment is being made at the request of the Minnesota Department of Health (MDH), which is proposing to promulgate rules governing a new category of licensed health care provider known as residential hospices. In 1988, MDH convened a Residential Hospice Task Force to develop minimum standards for these types of facilities. The task force felt that, while it was important to maintain as much of a residential atmosphere in these facilities as possible, it was equally important to have minimum standards for fire safety. Given that residential hospices house occupants that are mostly incapable of taking action for their own self-preservation, the task force determined that such facilities must be protected by automatic smoke detection and sprinkler and fire alarm systems. To help reduce the cost of the installation of the automatic sprinkler protection, an exception allows the use of sprinkler systems installed in accordance with IFC Sec. 903.3.1.2 (i.e. NFPA 13R sprinkler systems), provided all habitable spaces and closets are sprinklered. NFPA 13R sprinkler systems reduce installation costs by allowing sprinkler to be omitted from certain areas, some of which are unheated (e.g. attics, crawl spaces and penthouse equipment rooms). Allowing NFPA 13R sprinkler systems is reasonable from a life safety standpoint because such systems are specifically designed to improve the chance for occupants to be evacuated by preventing flashover (total involvement) in the room of fire origin.

Subpart 2b (Formerly: 7510.3560, subpart 1) carries forward two exceptions currently found in Sec. 1003.1.2, as amended, of the 1997 UFC. The first exception has provisions under which automatic sprinkler systems may be connected to the domestic water supply. The second contains provisions allowing the modification of sprinkler system hose stream demands. The exceptions have been editorially relocated to fit into the format of the IFC. They contain no new requirements. It should be noted, however, that a reference to *Uniform Building Code Standard 9-1* in Exception 1 has been editorially deleted, as that standard will no longer exist with the adoption of the new state building code.

Subpart 2d adds a section to the code dealing with sprinkler densities required for buildings of undetermined use. The amendment is being made at the request of the Minnesota Advisory Council on Fire Protection Systems and carries forward requirements found in the current state building code [see UBC Standard 9-1(97), Sec. 1-4.7]. This is necessary because it is not uncommon for sprinkler plans to be submitted for review for buildings for which the exact building use is unknown. Good examples of this would be “speculative” warehouses or retail stores where the general occupancy type is known, but the exact commodity to be placed in the building and storage heights are not. This can result in the installation of sprinkler systems that are under designed to handle the commodity being stored and/or the storage arrangements being used in the building. It is reasonable to provide such guidance to both designers and code officials so as to minimize the potential for costly changes being required once the actual building use and storage arrangements are known. It should be noted that a similar amendment is

being proposed to the 2000 *International Building Code*, which is in the process of being adopted by the Department of Administration, State Building Codes and Standards Division.

Subpart 2d also adds a section to the code dealing with sprinkler densities required for building spaces having a significant potential for hazards beyond those anticipated by basic sprinkler design standards. The amendment is being made at the request of the State Fire Marshal Division Sprinkler Section. Experience has shown that certain spaces and occupancies are commonly used for purposes other than that for which they were originally intended and for which the sprinkler system was originally designed. For example, gymnasiums, indoor ice rinks and ice arenas, and indoor sports arenas are now very commonly used for craft shows, exhibitions, home shows, flea markets, community garage sales and similar activities. Basic sprinkler designs for these occupancies are inadequate to handle the additional fuel load presented by the amounts of combustibles brought in for these other purposes (and, sometimes, even the combustible floor surfaces now being used). On the other hand, should the code official receive assurances that there is no potential for these occupancies being used for these other purposes, the code official would have the authority given by the administrative sections of the code (see IFC Sections 104.8 and 104.9) to accept lesser sprinkler densities. Other spaces also present significant hazards that sprinkler designs must address. An example would be bowling alleys, because of the flammable finishes used on the alleys and pins. School chemistry labs present a problem because of the storage and use of flammable and combustible liquids. School wrestling rooms commonly contain large amounts of stored plastic and foam mats both on the floor and on the walls. Because these are all normally occupied spaces, it is necessary to address the identified hazards by requiring a higher level of sprinkler protection (i.e. a sprinkler density designed and installed for Ordinary Hazard Group 2) to help ensure prompt and effective fire control. Again, it is reasonable to provide such guidance to both designers and code officials so as to minimize the potential for costly changes being required once the actual building use is known. It should be noted that a similar amendment is also being proposed to the 2000 *International Building Code*, which is in the process of being adopted by the Department of Administration, State Building Codes and Standards Division.

Subpart 3 is amended by the deletion of unnecessary language. The amendments being deleted are no longer necessary because the requirements they contain are now included in the code itself. IFC Sec. 903.4 requires the supervision and monitoring of sprinkler system control valves addressed in Sec. 1003.3 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subpart 3. The exception for existing sprinkler systems of less than 100 heads is maintained, however, to avoid creating a hardship for owners of existing buildings. Also deleted is language requiring both an external and an internal sprinkler flow alarm for sprinkler systems. The requirement for an external alarm is adequately covered in the standards referenced by IFC Sec. 903.3.1. The requirement for an internal alarm has been removed from the model code, so it is reasonable to eliminate the requirement for it in the state fire code. It was found that the requirement was quite often misinterpreted to mean that an alarm was required that was audible throughout the building for notification of all building occupants. That was not the intent of the requirement. The language being retained has been renumbered to fit into the format of the IFC.

Subpart 3a is an existing amendment currently found in Sec. 1003.3.3 of the 1997 UFC dealing with locking or securing of sprinkler control valves. The amendment has been renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 4 is amended by the deletion of unnecessary language. The provision allowing the omission of automatic sprinklers at the top of noncombustible elevator shafts is now adequately covered in Sec. 5-13.6.3 of the 1999 edition of NFPA 13. It is reasonable to follow the national standard, as there is no

proper justification for doing otherwise. The amendment has been renumbered to fit into the format of the IFC and otherwise contains no new requirements.

Subpart 4a (Formerly: 7510.3710, subpart 7) carries forward an amendment currently found in Sec. 4 of Appendix I-A of the 1997 UFC dealing with sprinkler protection for basements of existing buildings. The amendment has been editorially relocated and reworded to fit into the format of the IFC. It contains no new requirements. The only rewording done was the editorial addition of Group R-2 Occupancies to Item 5 of the amendment. This is both necessary and reasonable because the original intent of the amendment was to include apartment buildings (classified as R-1 Occupancies in the UFC, but as R-2 Occupancies in the IFC).

Subpart 4b adds a section requiring automatic sprinkler protection for existing rubbish and linen chutes. The language is consistent with long-standing practice of the State Fire Marshal Division based on the distinct hazard authority granted in Sec. 102.1 of the 1997 UFC. Fires in linen and rubbish collection rooms are quite common, often initiated by spontaneous combustion. While chute openings onto floors above the collection rooms are typically protected with fire door assemblies, such assemblies are oftentimes compromised due to rough use or lack of proper maintenance. It is important to have the additional protection afforded by automatic sprinklers to guard against the vertical spread of fire throughout a building. Proper sprinkler protection can also reduce the spread of toxic levels of smoke throughout a building by controlling a fire in its earliest stages. What makes this so important in existing buildings is that they typically do not have all the other fire safety features required by the code for new construction.

Subpart 4c adds a section requiring automatic fire-extinguishing systems for existing commercial type cooking equipment. The language is consistent with long-standing practice of the State Fire Marshal Division, which is again based on the distinct hazard authority granted in Sec. 102.1 of the 1997 UFC. The fire history in commercial cooking equipment has not been good over the years. The potential for fire is worse in existing buildings than in new construction due to older cooking equipment, more grease build-up and less fire-resistive construction. It is reasonable to require protection for the cooking equipment, the leading source of fire in eating establishments, in order to prevent more serious damage to a building from fires extending beyond the cooking equipment.

Subpart 5 is an existing amendment currently found in Sec. 1004.1.3 of the 1997 UFC dealing with standpipe pressures in sprinklered buildings. The amendment has been renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 6 is repealed because it amends a standpipe table (UFC Table 1004-A) that no longer exists in the IFC. The amendment is no longer necessary.

Subpart 7 is repealed because it is no longer necessary. The current amendment deletes the requirements in Sec. 1005 of the 1997 UFC dealing with basement pipe inlets. There are no requirements for basement pipe inlets in the IFC.

Subpart 7a adds a section which carries forward an amendment currently found in Item 4 of Table 1004-A of the 1997 UFC dealing with fire department standpipes for Group A-3 Occupancies used for exhibition purposes. The amendment has been editorially relocated and reworded to fit into the format of the IFC. It contains no new requirements. The only rewording done was the editorial change of the occupancy reference from Group A-2.1 to Group A-3. This was necessary because of the new occupancy classification system used in the IFC.

Subpart 7b amends a section dealing with fire department standpipes in covered mall buildings. The amendment is being made at the request of the State Building Codes and Standards Division's 2000 IBC Advisory Committee and is intended to correlate with the state building code. This request is in response to one made by a representative of Minnesota's retail association to keep the code consistent with current practice. The amendment deletes the requirement that buildings connected to covered malls (e.g. anchor stores) also be required to be equipped with standpipes. It was determined that it would be more reasonable to require standpipes in anchor stores only if they fell under the height and area provisions of IFC Sections 905.3.1 and 905.3.2, respectively. This provides cost savings to property owners without compromising safety, as the code requires that anchor stores be protected by automatic sprinklers.

Subpart 7c deletes provisions in the code requiring fire department standpipes for stages. This is consistent with both long-standing practice of the State Fire Marshal Division and an amendment made to Table 1004-A of the 1997 UFC (which deleted the requirement for standpipes on stages) [see current Minnesota Rules, part 7510.3560, subpart 6]. It is reasonable to omit the standpipes, as IFC Table 903.2.15 requires most stages to be protected by automatic sprinklers. Again, this not only maintains consistency with current rules, but also provides cost savings to property owners without compromising safety. See related change to IFC Sec. 905.5.1 (Minn. R., part 7510.3560, subp. 7e).

Subpart 7d adds a section to the code requiring fire department standpipes in Group I-3 detention and correctional facilities. Because of the scoping language in IFC Sec. 905.1, this requirement would only apply to new facilities. The amendment carries forward requirements based on those found in the current state building code (see Sections 321.2 and 321.3 of Appendix Chapter 3 of the 1997 UBC). Fighting fire in a jail or prison without compromising security presents a significant challenge to local fire departments. Having fire department hose connections inside secured areas provides a reasonable way to maintain necessary security by eliminating the need to run fire hoses through locked doors. While the current state building code requires Class II standpipes in some areas and Class I standpipes in others, the proposed amendment requires standpipe connections that can accommodate both 1½-inch and 2½-inch hose connections. This allows for fire attack by either the fire department or a properly trained internal fire brigade. Since Group I-3 Occupancies are required to be protected with automatic sprinklers, standpipes are only required in facilities with inmate populations of 50 or more that are under the highest levels of security. Even with sprinkler protection, however, standpipes are needed in larger facilities because inmates intent on significant destruction can set fires that can overpower the sprinkler system. It should be noted that a similar amendment is being proposed to the 2000 *International Building Code*, which is in the process of being adopted by the Department of Administration, State Building Codes and Standards Division.

Subpart 7e deletes provisions in the code requiring Class II (occupant use) standpipes in Group A-1 and A-2 Occupancies. This is consistent with both long-standing practice of the State Fire Marshal Division and an amendment made to Table 1004-A of the 1997 UFC (which deleted the requirement for standpipes on stages in such occupancies) [see current Minnesota Rules, part 7510.3560, subpart 6]. It is reasonable to omit the standpipes, as IFC Table 903.2.15 requires most stages to be protected by automatic sprinklers and IFC Sections 903.2.1.1 and 903.2.1.2 require sprinklers throughout most A-1 and A-2 Occupancies. Experience has also shown that it is not appropriate to count on building occupants to know how to properly use standpipe hoses without jeopardizing their own safety. The omission of the standpipes, therefore, provides cost savings to property owners without compromising safety. See related change to IFC Sec. 905.3.5 (Minn. R., part 7510.3560, subp. 7c).

Subparts 8 through 19 constitute an extensive rewrite of the IFC fire alarm requirements applicable to new buildings and structures. This rewrite is necessary because the IFC requirements, as written, are vague and overly restrictive and place a heavy emphasis on manual fire alarm pull stations. The

amendments arrange the requirements into a more “user-friendly” format intended to help the designer, property owner/operator and code official identify exactly what type of fire alarm is required in each occupancy, how it is intended to be activated (identified as “Initiation” requirements) and who is supposed to be notified on activation (identified as “Notification” requirements). Vague language like that found in IFC Sec. 907.2.6 (i.e. “A manual fire alarm system and an automatic fire detection system shall be installed in Group I occupancies.”) is replaced with specific requirements outlining where automatic fire detectors must be provided.

The amendments also bring the IFC more into line with fire alarm requirements found in the current state fire code (see Section 1007 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subparts 8 through 15). In addition, they allow automatic sprinkler systems to be used for and/or replace fire alarm functions. This is consistent with the philosophy of the State Fire Marshal Division to encourage the use of automatic sprinkler systems as a cost-effective way of providing an acceptable level of fire and life safety. This is also consistent with Minnesota Statutes, section 14.131, which identifies a determination of whether there are less costly or less intrusive methods for achieving the purpose of the proposed rule as one of six factors for a regulatory analysis that must be included in the Statement of Need and Reasonableness.

The requirements contained in Subparts 11a and 13a for new Group B (business) and F (factory) Occupancies are two examples of these sprinkler equivalencies. While it is reasonable to require fire alarm systems in these occupancies, to be consistent with the model code and provide a minimum level of safety for the occupants of these buildings, the amendments allow fire alarm systems to be omitted when the occupancies are protected with automatic sprinklers. By amendment, the current state fire code already allows fire alarm systems to be omitted in sprinklered Group A Occupancies (see Sec. 1007.2.2.1 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subpart 9). The proposed IFC amendments do the same for Group B and F Occupancies, thus promoting sprinklers and providing cost savings to property owners.

The amendments move the code away from the model code’s heavy emphasis on manual fire alarm boxes. Requirements for manual pull stations have been deleted for Group A Occupancies (see Subpart 10), Group B Occupancies (see Subpart 11a), Group F Occupancies (see Subpart 13a), Group R-1 Occupancies (see Subpart 18) and Group R-2 Occupancies (see Subpart 19). This is necessary because manual pull stations are too frequently used to generate false alarms in certain occupancies (e.g. apartment buildings, places of assembly and schools). The omission of the pull stations is reasonable since automatic fire detectors and/or fire sprinkler systems are being used in their place to provide early notification of fire. Locations where automatic detectors are required are identified in the “Initiation” section for each occupancy. A big advantage of using fire detectors or automatic sprinklers is that they provide notification whether persons are present in or near the area of fire origin or not.

Most of the fire alarm amendments in current rules are being retained. They are, however, being editorially relocated and renumbered to fit into the format of the IFC and can be found in Subparts 8, 9, 10, 12, and 14. In addition to the modifications previously discussed, other amendments made to the fire alarm requirements include:

- Subpart 10a requires that actuation of the fire alarm system in Group A Occupancies activate an audible and visible signal at a constantly attended location instead of sounding an alarm throughout the building (although a general alarm is allowed by exception where no constantly attended location exists). The intent is that staff, on receipt of the alarm, can notify and provide instructions to the occupants by way of live or prerecorded announcements over the public address system. Experience has shown that audible alarms in places of assembly are oftentimes ignored. Experience has also

shown that using voice announcements giving appropriate instructions results in a more timely and orderly evacuation of the building occupants.

- Subpart 10b is simply an editorial relocation of the requirements found in IFC Sec. 907.2.1.1 (made necessary by the amendments in Subparts 10 and 10a). It should be noted that the requirement in IFC Sec. 907.2.1.2 dealing with emergency power for emergency voice/alarm communication systems has not been included in these amendments as this is covered in Sec. 3-8.4.1.3.4 of NFPA 72 (which is the national fire alarm standard referenced in Subpart 8 above).
- Subpart 11 is repealed because the format of the proposed amendments to the fire alarm requirements for Group A Occupancies makes it is no longer necessary (see proposed IFC Sections 907.2.1 through 907.2.1.3, as amended by Minnesota Rules, part 7510.3560, subparts 9 through 10b). The current amendment deletes the requirements in Sec. 1007.2.2.3 of the 1997 UFC dealing with emergency power for voice communication systems in Group A Occupancies. This is now handled differently in the new code, as explained in Subpart 10b above.
- Subpart 11a adds requirements for fire alarm systems in new outpatient clinics (ambulatory surgical centers). This is intended to bring the IFC more into line with federal standards applicable to healthcare facilities receiving federal Medicare and Medicaid funds. As mentioned previously, this subpart amends the Group B Occupancy fire alarm provisions further by deleting the requirement for manual pull stations, identifying where automatic sprinklers can be used in lieu of a fire alarm system, spelling out how the fire alarm system is to be initiated and how notification is accomplished.
- Subpart 12 editorially reformats the fire alarm requirements for Group E Occupancies found in the current state fire code (see Section 1007.2.4 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subparts 12 and 13). The amendment to proposed IFC Sec. 907.2.3.2 carries forward language relating to travel through intervening rooms currently found in Sec. 1007.2.4.2.2 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subpart 13. Instead of just referencing the Building Code, however, specific requirements for automatic smoke detection are added. This is necessary to help ensure that persons who have to travel through another room to exit a space receive sufficient early warning so they don't become trapped in that space by a fire occurring in the other room. The provisions in the amendment are based on those found in the current state building code (see Sec. 1007.3.4 of the 1997 *Uniform Building Code*). It should also be noted that the smoke detection exception (i.e. Exception 2) to proposed IFC Sec. 907.2.3.1 includes a requirement for alarm verification. This is intended to help cut down on the number of false alarms, both accidental and intentional, that occur in schools.
- Subpart 13 no longer exists due to changes in rule format made by the Revisor of Statutes due to the reformatting of the fire alarm requirements for Group E Occupancies described in Subpart 12 above.
- Subpart 13b editorially reformats the fire alarm requirements for Group H Occupancies. These provisions are based on those found in IFC Sections 907.2.5, 3704.2.2.9, 3904.1.6 and 4004.1.7.
- Subpart 14 adds a requirement for corridor smoke detection in new Group I-2 Occupancies. Because both state and national codes allow many areas to be open to corridors in healthcare occupancies, there is a need to provide sufficient early warning should a fire incident occur that could compromise the corridor exit system. In addition, current operational procedures being followed in these occupancies oftentimes result in significant combustible loads in corridors (e.g. linen carts, drug carts, computer work stations and so on). While on-going efforts are made to reduce the combustible loads, it is not feasible to eliminate them entirely.
- Subpart 15 no longer exists due to changes in rule format made by the Revisor of Statutes to fit the rules into the format of the IFC.
- Subpart 16 is repealed because it is no longer necessary. The provisions currently found in this subpart are being editorially relocated to Minnesota Rules, part 7510.3560, subpart 28.

- Subpart 17 deletes the requirement the IFC adds for fire alarm systems in Group M Occupancies (see IFC Sec. 907.2.7). There are no similar provisions in the current state fire code. Given that Group M Occupancies meeting the triggers for a fire alarm system will be protected with automatic sprinklers (see IFC Sec. 903.2.6), the cost of installing fire alarm systems in these occupancies would very likely outweigh any benefit provided.
- Subpart 18 amends the fire alarm requirements for Group R-1 Occupancies (e.g. hotels and motels) to make them consistent with those currently found in Sec. 1007.2.9.1 of the 1997 UFC. In addition, it adds an exception which allows the installation of approved multiple-station smoke detectors in lieu of a complete fire alarm system in Group R-1 Occupancies containing five or less guest rooms. This is necessary to help ensure at least a minimum level of safety for the occupants of such buildings, while doing so at a reasonable cost. While smaller R-1 Occupancies don't typically need a full-blown fire alarm system, it's reasonable to expect that the occupants of those buildings be given sufficient early warning to allow them adequate time to escape in time of fire.
- Subpart 19 amends the fire alarm requirements for Group R-2 Occupancies (e.g. apartments) to make them more consistent with those currently found in Sec. 1007.2.9.1 of the 1997 UFC. This includes the addition of a requirement for a fire alarm system in Group R-2 Occupancies having an occupant load of 20 or more. This carries forward a requirement currently found in Sec. 1007.2.9.1.1 of the 1997 UFC.

Subpart 20 adds an exception which allows battery backup to be omitted from smoke detectors in sprinklered Group R-2 Occupancies. This is a reasonable way to recognize the life safety benefits of automatic sprinklers and reduce initial installation and long term maintenance costs for property owners.

Subpart 21 adds requirements for fire alarm systems in new residential hospices. This amendment is being made at the request of the Minnesota Department of Health (MDH), which is proposing to promulgate rules governing a new category of licensed health care provider known as residential hospices. In 1988, MDH convened a Residential Hospice Task Force to develop minimum standards for these types of facilities. The task force felt that, while it was important to maintain as much of a residential atmosphere in these facilities as possible, it was equally important to have minimum standards for fire safety. Given that residential hospices house occupants that are mostly incapable of taking action for their own self-preservation, the task force determined that such facilities must be protected by automatic smoke detection and sprinkler and fire alarm systems.

Subparts 22 through 27 are an extensive rewrite of the IFC fire alarm requirements applicable to existing buildings and structures. The reasons for the complete rewrite of the requirements in the IFC are essentially the same as those that brought about the rewrite of the provisions applicable to new buildings and structures and will not be repeated here. The requirements contained in the amendments are consistent with long-standing practice of the State Fire Marshal Division based on the distinct hazard authority granted in Sec. 102.1 of the 1997 UFC. Thus, requirements are added for fire alarm systems in Group A (assembly) Occupancies. This is both necessary and reasonable because of the large numbers of occupants typically found in these occupancies. To promote sprinklers and provide cost savings to property owners, fire alarm systems can be omitted in sprinklered Group A Occupancies.

Subpart 28 carries forward requirements based on those found in the current state fire code dealing with smoke detectors in existing Group R Occupancies. The amendment, which is necessary to be consistent with long-standing practice of the State Fire Marshal Division, is based on language currently found in Sec. 1007.2.9.2 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subpart 16. The language has been editorially relocated and reworded to fit into the format of the IFC and contains no new requirements.

Subpart 29 deletes the exception to IFC Sec. 907.4.1. This is an editorial change required to correlate with previous amendments. The provisions dealing with manual pull stations in Group E Occupancies are covered in Exception No. 1 to IFC Sections 907.2.3.1 and 907.3.2.1, as amended (see Minnesota Rules, part 7510.3560, Subparts 12 and 24). Subparts 12 and 24 incorporate the same requirements as those found in the exception to IFC Sec. 907.4.1 except that instead of requiring manual activation at a “normally occupied location”, Subparts 12 and 24 define specific locations in the building where manual pull stations are required (i.e. the main office and a custodial area). This is consistent with current rules (see Sec. 1007.2.4.1 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3560, subpart 12).

Subpart 30 is intended to correlate with 7510.3560, subpart 1a, and amends the code to allow annual inspection and testing of fire alarm systems in lieu of the intervals specified in NFPA 72. It is felt that the intervals specified in the standard are unrealistic and costly. The code official is authorized to require inspection and testing at more frequent intervals where the situation warrants (e.g. because of on-going false alarm or reliability problems or where special hazards exist).

Subpart 31 adds a requirement for post-fire smoke exhaust systems in high-rise and covered mall buildings. The amendment is intended to correlate with the state building code. Post-fire smoke exhaust systems are needed to assist the fire department in the task of evacuating smoke from these buildings after a fire has occurred. This helps to reduce the amount of fire loss a property suffers due to smoke damage. With the design of typical curtain wall construction and the requirement for fixed windows above the fourth story in high-rise buildings, ventilation and the removal of smoke is nearly impossible in fire overhaul and post-fire cleanup without the removal of windows. This is not an acceptable option, as it endangers firefighters and other persons on the street below. Exhausting smoke through the exit stairways is also an unacceptable option, as it endangers persons using the stairways to exit the building. In covered mall buildings, experience has shown that, even after a fire is extinguished, the public has been safely evacuated and the fire has been declared under control, smoke needs to be promptly evacuated from the building to prevent continued damage to merchandise. Without a proper smoke exhaust system, removal of the smoke from these types of buildings can take many hours. This is because the only options available to the fire department are to use the existing exterior doors, which are limited in number and spaced great distances apart, or to cut holes in the roof. These methods are not only time consuming, but also usually result in smoke being pulled through tenant and other spaces not directly affected by the fire. This increases the amount of fire loss a property suffers due to smoke damage. The amendment references the state building code, rather than duplicating the requirements contained in that code. This is necessary in order to prevent conflicts between the codes, especially if one or the other is amended, and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1.

Subpart 32 amends a section of the code dealing with smoke and heat vents. The section has been reorganized to call for mechanical smoke exhaust as the default where the code requires smoke and heat venting. The fire service has realized that mechanical smoke exhaust is much more efficient than smoke vents at improving conditions during firefighting operations. Recent full scale testing by the National Institute of Standards and Technology has demonstrated that few smoke vents actually open during fires in sprinklered buildings, due to the links being cooled by sprinkler spray<sup>1</sup>. Because incident commanders have full control over the operation of mechanical systems during a fire, there is no need to send firefighters to the roof to open or close additional smoke vents. By mandating mechanical smoke

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<sup>1</sup> see McGratten, Kevin; Hamins, Anthony and Stroup, David. “Sprinkler, Smoke & Heat Vent, Draft Curtain Interaction – Large Scale Experiments and Model Development”. National Institute of Standards and Technology, NISTIR 6196. August 1998

exhaust, firefighter safety is improved, along with an expected decrease in property damage due to smoke.

There are three exceptions to this requirement. The first allows calculated engineering designs. Engineered designs are already allowed under the current state fire code (see amendments to Article 81 of the 1997 UFC found in current Minnesota Rules, part 7510.3660, subparts 2 and 3. The second allows traditional smoke and heat vents in non-sprinklered buildings as there is no sprinkler interference with vent activation mechanisms in such buildings. Finally, when allowed by the code official, traditional smoke and heat vents can still be used instead of mechanical smoke exhaust in sprinklered buildings as well. Because of differences in firefighting tactics, training, resource distribution and equipment, some fire departments may prefer traditional smoke and heat vents. There may be additional issues relating to water supply and electrical reliability or weather conditions, such as icing or snow load, that may also cause a jurisdiction to prefer one method over another.

The amendment also requires that smoke and heat vents and mechanical smoke exhaust fans be listed for the intended purpose. This is necessary because this equipment is subject to elevated temperatures during a fire and must operate without premature failure. It is reasonable to require that listed equipment be used in order to ensure that the equipment has been tested at temperatures representative of hot smoke. Finally, the amendment addresses the location of curtain boards in buildings provided with mechanical smoke exhaust. The majority of mechanical smoke exhaust designs submitted include a request to omit curtain boards. In addition, there is little practical experience or test data available to show that curtain boards are necessary when mechanical smoke exhaust is used. The amendment, therefore, only requires curtain boards at the separation between areas protected with early suppression fast response (ESFR) sprinklers and conventional sprinkler systems in order to correlate with Footnote b in IFC Table 910.3.

Subpart 33 is an amendment made in order to correlate IFC Sec. 910.4 with the previous amendment made to IFC Sec. 910.1.1. (see Subpart 19). The amendment is necessary because mechanical smoke exhaust has been made the default where the code requires smoke and heat venting.

Subpart 34 amends the code by requiring that mechanical smoke exhaust be activated only on sprinkler system water flow. A delay between the sprinkler water flow signal and exhaust fan activation is also required. While there is no definitive research addressing this one way or the other, some code officials have expressed concerns about the possibility of mechanical smoke exhaust systems negatively impacting sprinkler operation. To address this uncertainty, a 5 to 10 minute delay between the sprinkler water flow signal and activation of the exhaust fans has been incorporated. Since ESFR sprinklers were cited as a particular concern, a review of full scale ESFR sprinkler fire test data showed that successful suppression was characterized by nearly all sprinklers activating within 5 minutes of the first sprinkler. Test data in support of this can be found from two sources: (1) FM Global Data Sheet 2-2, "Installation Rules for Suppression Mode Automatic Sprinklers", September 2001, and (2) Chicarello, P.J. et Al., "Large-Scale Fire Test Evaluation of Early Suppression Fast Response (ESFR) Automatic Sprinklers", Prepared for National Fire Protection Research Foundation and Factory Mutual Research Corporation. FMRC Technical Report J.I. 0M2R5.RR/0M0J7.RR), May 1986. Some code officials and fire departments prefer to have mechanical smoke exhaust systems that operate only when activated manually by the fire department. An exception is, therefore, added for that purpose. Again, differences in fire department training, resources or tactics produce the need for flexibility in system operation.

Subpart 35 amends the provisions of the code dealing with supply air for exhaust fans. This amendment is necessary because the IFC provides insufficient guidance as to what airflow velocity to use when calculating the size of supply openings. The code also lacks guidance on the issue of whether supply air

should be provided automatically upon system activation or the fire department should be required to open doors for proper system operation. Both fire officials and design consultants indicate that the most common failure during system acceptance testing is a lack of adequate supply air. Too often designers assume a velocity that is too great, thus resulting in undersized openings. The 200 feet per minute limitation on airflow velocities is the same as specified in IFC Sec. 909.8.1 for smoke control systems using the exhaust method to remove smoke from atria (which is analogous to smoke and heat venting from large spaces addressed by IFC Sec. 910). Due to difficulties in training and ensuring that a sufficient number of doors are opened early in a fire incident, automatic activation of supply air is required. Practical experience in the installation of mechanical smoke and heat venting systems shows that certain designs could allow smoke to be drawn back into the building by the supply air openings. The last sentence in this section is, therefore, intended to make sure designers address this situation.

Subpart 36 adds performance-based provisions to the code allowing the use of calculated engineering designs for mechanical smoke exhaust systems. The new provisions replace an existing amendment to Sec. 8102.7.5 of the 1997 UFC (see current 7510.3660, subp. 3). Actual experience and more recent laboratory testing have shown that the existing amendment is both outdated and subject to many misinterpretations. The new provisions are based on compromise language developed through a collaborative effort involving the State Fire Marshal Division, Minnesota's fire service and professional engineers representing the constituencies directly affected by the amendment.

Smoke exhaust systems are designed to remove smoke from high-piled storage areas or other large buildings after a fire is extinguished. They are intended to assist the fire department during suppression operations. They are not considered life safety systems, nor are they designed for occupant safety. Calculated engineering design of mechanical smoke exhaust represents a performance-based approach to exhaust design and is intended to address the wide range of alternate materials and methods submissions that code officials have seen in the last few years. Code officials are frequently asked to accept these alternate designs in place of the prescriptive requirements found in the code. Since there is limited guidance for designers on how to calculate these systems, this leads to wildly different systems being installed in otherwise similar buildings. There is an additional difficulty in getting approval by code officials, since some plan submissions result in significantly under-designed systems when compared to that required by the code. Reasons for this include not addressing all of the relevant fire physics, designers not selecting conservative assumptions, and, again, a lack of guidance provided by the code.

It is reasonable to add these provisions to the code to give designers a performance-based option to the prescriptive requirements of the code and building owners a more cost-effective way to protect their property. Highlights of the amendment include:

- The use of the calculated engineering design option requires both the approval of the code official and the installation of sprinkler protection throughout the building.
- The required input values and calculation process for a performance-based design of mechanical smoke exhaust are provided. The advantage of the calculation method for the builder is that in most cases the design should result in a smaller overall exhaust rate when compared to the prescriptive requirements in IFC Sec. 910.4. At the same time, the performance is quantified during the calculations, so this benefits the fire department in that they can have a better idea about what to actually expect from the system.
- To assist both the designer and the code official, the process by which calculations of the required exhaust rate are carried out is given in a logical easy to follow sequence.
- Minimum heat release rates are provided. Heat release rate represents the quantity of energy given off by a fire per second and is a measure of how large or severe the fire is at a given time. By taking into account the improved fire protection provided by ESFR sprinklers, it is appropriate to permit a

lower heat release rate to be used when compared to control mode sprinklers. A review of the full scale testing that was used to develop ESFR sprinklers shows that suppression must occur before the heat release rate reaches 4000 BTU/sec if the system is going to be successful. Since ESFR sprinklers apply to a wide range of commodities and have been shown to limit both smoke and water damage, a smaller design fire size will result in a more economical smoke exhaust systems and is considered an incentive to encourage the installation of ESFR sprinklers.

- Because designers are tempted to overestimate the effectiveness of sprinklers when protecting high piled storage (by assuming that the fire growth is halted upon activation of the first sprinkler), designs using smaller fire sizes are not permitted. When this assumption is made, significantly under-designed smoke exhaust systems result, often without code officials being fully aware of the limitations imposed by the design parameters. The heat release rates given in the amendment are considered reasonable minimums for safe system operation and are also intended to reduce the contentious discussions between code officials and designers that often arise over design fire size.
- A clear smoke layer height is established for calculation purposes. Even more important than fire size to safe system design, incorrectly specified clear layer height will likely result in an under-designed system.
- The calculation method found in IFC Sec. 909.8.2 for axisymmetric plumes (e.g. atria smoke control) is also used to calculate the plume mass flow rate and corresponding volumetric flow rate. Designers may prefer to use fire modeling programs or other calculation methods to determine the smoke generation rate and such use is permitted when approved by the code official.
- IFC Equation 9-4 is used for the conversion from a smoke generation rate (in lbs/second) to volumetric flow rate (in cubic feet/minute) to prevent against under-designed systems. Since fire gases expand when heated, their corresponding density decreases. Exhaust fans are expected to remove well-mixed smoke, so it is appropriate to use an average smoke layer temperature to calculate the corresponding density. The plume centerline temperature, although higher than the average smoke layer temperature, acts over only a very small area, so it is not the appropriate temperature for use in calculating density.
- A 10% safety factor is included. Even with calculated engineered smoke exhaust systems, there are fire physics such as increased smoke mixing caused by sprinklers that are not addressed. To account for uncertainties in the calculation method, an explicit safety factor is necessary at the end of the calculation process. Similar explicit safety factors have been in use for years with structural engineering calculations found in the building code.
- A minimum system size is established. Engineering calculated smoke exhaust systems unfortunately do not account for the size of the building in the calculation method. Code officials and consultants have indicated that such calculations may not be conservative for very large buildings, such as distribution centers. These buildings may require unacceptably long times to reduce smoke concentrations to an acceptable level. By placing a minimum system size of 3 air changes per hour, smoke concentrations would be reduced to 5% of their original levels after one hour of fan operation.
- Operation and supply air requirements are added to correlate with the amendments made to IFC Sections. 910.4.3 and 910.4.5, respectively.
- To assure uniformity between code sections, wiring, controls and interlocks for calculated engineering designed systems are required to be the same as for systems designed according to IFC Sec. 910.4.

Subpart 37 add a section to the code containing requirements for maintenance and annual testing of mechanical smoke exhaust systems, since the IFC provides no clear direction in this area. This is necessary to ensure the proper installation and continued reliability of these systems. To accomplish this, the systems need to be tested through the automatic initiating devices, such as sprinkler water flow

switches, that will start the system under actual fire conditions. It is also necessary to test the manual controls provided at the firefighter's control panel. Since most fire departments lack the staff and expertise to conduct inspections of mechanical smoke exhaust systems, where extra care in quality control is important to ensure compliance with the code, the amendment includes language dealing with special inspections. The provision of annual testing is similar to what is done for other fire protection systems.

### **Part 7510.3570 – General Safety Precautions**

This part is being repealed, as the amendments are no longer necessary. They are now covered elsewhere as follows:

- Subpart 1 deleted code requirements dealing with incinerators and open burning. These deletions can now be found in 7510.3532, subp. 2, and 7510.3536, subp. 2.
- The amendment dealing with Christmas trees in Subparts 2 and 3 has been editorially relocated to IFC Sec. 804.1.1 to fit into the format of the IFC (see 7510.3542, subp.4).
- The amendment in Subpart 4 dealing with unvented heaters is being repealed in favor of the language in IFC Sec. 603.5.2, which references the mechanical code for installation requirements applicable to heating appliances. This is necessary in order to prevent conflicts with the state mechanical code and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. The state mechanical code is currently going through the process of being updated. As part of that update, amendments are being considered to the provisions in the model code being adopted that deal with heating equipment. It is reasonable, therefore, to use language in the fire code that makes a generic reference to the mechanical code so that the codes will correlate regardless of which mechanical code is adopted or what amendments are made to it.
- The amendments found in Subparts 5 and 6 dealing with fire-resistive construction and required fire assemblies have been editorially relocated to IFC Sec. 804.1.1 to fit into the format of the IFC (see 7510.3538, subparts 1 and 2).
- The amendment in Subpart 7 is being repealed, as language dealing with guardrails can now be found in IFC Sections 1003.2.12 (for new construction) and 1010.6 (for existing buildings).
- The amendment dealing with atria in Subpart 8 has been editorially relocated to IFC Sec. 704.2 to fit into the format of the IFC (see 7510.3538, subp. 3).
- The amendment dealing with mezzanines in Subpart 9 has been editorially relocated to IFC Sec. 610.1 to fit into the format of the IFC (see 7510.3536, subp. 6).

### **7510.3580. Chapter 10 – Means of Egress**

Subpart 1 is an existing amendment currently found in Sec. 1201.3 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3580, Subpart 1, containing a reference to the building code requirements that establish special exiting provisions for younger students in schools. References to the various divisions of Group E Occupancies (i.e. Groups E-1, E-2 and E-3) are being editorially deleted, as the IFC no longer uses those occupancy designations. The amendment has been renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 1a deletes a confusing exception to the scoping section of Chapter 10. The exception can be interpreted to exempt one- and two-family dwellings and townhouses, which are classified as Group R-3 Occupancies in the IFC, from the provisions of Chapter 10. The exception goes on to require that the means of egress in these occupancies comply with the *International Residential Code (IRC)*, which is in the process of being adopted by the Department of Administration, State Building Codes and Standards Division. The confusion comes from the fact that there are requirements applicable to R-3 Occupancies throughout the chapter. Said another way, although such occupancies need to comply with the IRC, they need to comply with IFC Chapter 10 as well. Both the State Fire Marshal Division and local fire code

enforcement officials need minimum exiting requirements that can be applied to the R-3 Occupancies they inspect – daycare homes, foster homes and resort cabins. To help ensure and maintain consistency with the IRC, however, various amendments are being proposed to IFC Chapter 10 (see 7510.3580, subparts 1d and 9).

Subpart 1c amends the definition of “corridor” and adds a definition of “aisle”. The definition of “corridor”, currently found in the amendments to Chapter 2 of the 1997 UFC (see current Minnesota Rules, part 7510.3530, Subpart 3), is being editorially relocated from to fit the format of the IFC. It contains no new requirements. A new definition of “aisle” is being added to replace the one currently found in the amendments to Chapter 2 of the 1997 UFC (see current Minnesota Rules, part 7510.3530, Subpart 1). The new definition was added at the request of a representative of Minnesota’s retailers association. The amendment is both necessary and reasonable in order to avoid confusion and correlate with the definition of “aisle accessway” found in IFC Sec. 1002.1.

Subpart 1d adds a section to the code dealing with the height of guards in residential occupancies. This amendment is being made to correlate with a similar amendment being proposed to the state building code and allows the top of a guard in R-3 Occupancies and within dwelling units or guest rooms of R-2 Occupancies to be constructed 36 inches high instead of 42 inches high. The intent is to carry forward design and construction provisions for residential construction from the current state building code (see Exception 1 to Sec. 509.2 of the 1997 *Uniform Building Code*). The primary reason for the amendment is to maintain current and consistent costs associated with residential construction. The minimum design standards for residential “guardrails” or “guards” have remained virtually the same in the state building code for the past 30 years. During that period of time, many thousands of dwellings and dwelling units have been constructed using the current guardrail standard. Similarly, over that same period of time, an infinite number of building supply products have been designed, engineered and manufactured to suit the specific conditions of current residential guardrail design features. Without a negative safety history to support it, it would be unreasonable to start requiring that the construction industry redesign, retool and remanufacture many of the related products intended for use for residential guard construction.

Subpart 1e deletes the provisions in the IFC dealing with accessible means of egress. This is necessary in order to prevent conflicts with other state regulations that address facilities for the handicapped and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. In Minnesota, accessible means of egress falls under regulations adopted and enforced by the Department of Administration, State Building Codes and Standards Division (see Minnesota Rules, Chapter 1340).

Subpart 2 is basically an editorial renumbering of an existing amendment to fit the format of the IFC. The amendment can currently be found in Sec. 1206 of the 1997 UFC and deals with emergency escapes. In addition to some necessary reformatting, three other changes were made to the amendment:

- Group I-1 Occupancies are now included in the requirements. This is necessary in order to be consistent with previous codes and past enforcement practice of the State Fire Marshal Division. The occupancies now classified as I-1 in the IFC were classified as Group R Occupancies in the UFC.
- An exception is being added to exempt hotels and motels constructed prior to April 11, 1983 from the requirement for escape windows. This amendment is necessary because language in IFC Sec. 1010.1 allows for retroactive application of the escape window requirements. While this is appropriate for most residential occupancies, to provide a vital second means of escape for immediate use in case of emergency, such is not the case for hotels and motels. These facilities have had to meet more stringent fire safety construction requirements than most other residential occupancies, because of frequent state-mandated inspections by the State Fire Marshal. Oftentimes, to meet these requirements, owners have installed automatic sprinkler systems. In addition, hotels and motels do not typically contain the hazards found in most other residential occupancies (e.g.

cooking, candles, portable heating appliances, etc.). It would, therefore, be unreasonable to require escape windows in hotels and motels constructed prior to April 11, 1983. This is the date of adoption of the 1982 UFC, which is when the state fire code began requiring escape windows in hotels and motels.

- Language requiring smoke detectors in order to install bars, grills, grates or similar devices over escape windows is being deleted from the exception to IFC Sec. 1009.1.1, as amended. This is being done because other sections of the code already require smoke detectors, regardless of whether security devices are installed over the escape windows (see IFC Sections 907.2.10, as amended by part 7510.3560, Subpart 20, and 907.3.6, as amended by part 7510.3560, Subpart 28).

Subpart 3 is an editorial renumbering of an existing amendment to fit the format of the IFC. The amendment can currently be found in Sec. 1207.3 of the 1997 UFC (see current Minnesota Rules, part 7510.3580, Subpart 3) and deals with locking of exit doors. In addition to some necessary reformatting, one other change was made to the amendment. Exception 4, allowing door locking arrangements that comply with the building code, is being changed to include R-3 and R-4 Occupancies. This amendment is being made to correlate with an amendment being proposed to the state building code and is necessary because some facilities that fall within these occupancy categories now house persons that can be a danger to themselves and/or the general public. Because of this, it is oftentimes necessary to provide some minimal means to control exiting from the building. It is reasonable to allow these controls, since the amendment references the building code, which requires additional fire/life safety protection features (e.g. sprinklers and smoke detectors) where such controls are used.

Subpart 3a is an existing amendment currently found in Sec. 1207.3 of the 1997 UFC dealing with bolt locks (see current Minnesota Rules, part 7510.3580, Subpart 3). The amendment has been renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 3b removes the prohibition against the use of delayed egress locks in schools. Such devices consist of a panic bar which releases the lock within 15 to 30 seconds of being pushed. Attacks that have occurred against both staff and students over the past several years have pointed up the need to control travel both into and out of school buildings. The use of these locks is consistent with national standards (i.e. NFPA 101) and past enforcement practice of the State Fire Marshal Division based on the alternate methods and practical difficulties authority granted in Sec. 103 of the 1997 UFC. No negative impact of their use has been documented. It would be unreasonable, therefore, to prohibit them with the adoption of the new state fire code. IFC Sec. 1003.3.1.8.2 is amended further by deleting the provision that allows the delayed egress locks to be used in buildings equipped with an automatic heat detection system. Experience has shown that fires typically produce detectable quantities of smoke prior to detectable levels of heat in the majority of cases. In addition, slowly developing, smoldering fires can produce incapacitating and even lethal levels of smoke and toxic gases without any significant increase in room temperature (required to activate heat detectors). To allow exit doors to be locked in buildings equipped with a heat detection system only would jeopardize public safety, as there could be a very significant delay in the required automatic release of the locks. The amendment still allows the use of delayed egress locks in buildings protected throughout with either automatic sprinklers or a complete, automatic smoke detection system. Automatic sprinklers can protect building occupants by not only performing a lock-deactivation function, but also by helping to control the spread of fire beyond the area of origin. Experience has shown that properly installed automatic smoke detection systems can provide sufficient early warning for occupants to perform a safe evacuation.

Subpart 4 is an editorial renumbering of an existing amendment to fit the format of the IFC. The amendment can currently be found in Sec. 1207.8 of the 1997 UFC and allows the locking of exit doors from certain rooms, other than cells, where the occupants are being restrained for safety or security

reasons (e.g. time-out rooms in schools and seclusion rooms in hospitals). The amendment is intended to apply only to locked rooms, not locked wings, floors or buildings. In addition to some necessary reformatting, one other change was made to the amendment. IFC Sec. 1003.3.1.8.5.4 is being amended to require that doors from these rooms swing with egress travel from the room. This is necessary because experience has shown that where the door swings into the room it can be blocked, either intentionally or unintentionally, to prevent staff from entering the room to provide needed assistance.

Subpart 5, which deals with exit corridor requirements, is being repealed, as the provisions contained in this subpart are now covered elsewhere in the code. Corridor provisions for new construction in current Sec. 1209.1 of the 1997 UFC, as amended by this subpart, can be found in IFC Sec. 1004.3.2. These provisions are reprinted from Chapter 10 of the 2000 *International Building Code*, which is in the process of being adopted by the Department of Administration, State Building Codes and Standards Division. Correlation with the state building code is consistent with the original intent of the language contained in this subpart.

Corridor provisions for existing construction (currently handled by a reference to Sec. 2.3 of Appendix I-A in Exception No. 1 to Sec. 1209.1 of the 1997 UFC, as amended by this subpart) can now be found in IFC Section 1010.17, as amended by proposed part 7510.3580, subpart 17. These requirements are the same as those found in current rules (see current Minnesota Rules, part 7510.3710, Subpart 5). The language allowing self-closing devices to be omitted from school classroom doors in sprinklered buildings (currently found in Exception No. 2 to Sec. 1209.1 of the 1997 UFC, as amended by this subpart) is no longer necessary because IFC Table 1004.3.2.1 now allows unrated corridors in Group E Occupancies protected with an automatic sprinkler system.

The provisions dealing with storage of clothing and personal effects in school corridors (currently found in Sec. 1209.2 of the 1997 UFC, as amended by this subpart) are no longer necessary as they are now located in IFC Sec. 803.3. That section is being amended to bring the requirements into line with those found in current rule. Similarly, the provisions dealing with child-prepared artwork (currently found in Sec. 1209.3 of the 1997 UFC, as amended by this subpart) are no longer necessary as they, too, are now located in IFC Sec. 803.3. Coupled with the requirements found in IFC Sections 906.6 and 1011.4, the IFC contains the same requirements as those found in current rule.

Subpart 6, which deals with exit obstructions, is being repealed, because the same maintenance requirements can now be found in IFC Sec. 1011.3.

Subpart 7, which addresses pedestrian walkways, is being repealed, as the provisions contained in this subpart have been editorially relocated to fit into the format of the IFC (see 7510.3536, subp. 7).

Subpart 8, which addresses escalators, is being repealed, because the provisions contained in this subpart are now covered elsewhere. Language prohibiting the use of escalators as exits can now be found in IFC Sections 1003.2.9 (for new construction) and 1010.2 (for existing buildings) and is consistent with current rules. The amendment dealing with construction requirements relating to escalators has been editorially relocated to fit into the format of the IFC (see 7510.3538, subp. 4).

Subpart 9 contains two revisions to the code. First, coupled with the deletions outlined in Subpart 10 which follows, it replaces the provisions in the IFC that deal with stairways with language carried forward from the current state fire code (see Sec. 1210.1 of the 1997 UFC). The amendment requires that stairways be constructed and maintained in accordance with the building code. This is necessary in order to prevent conflicts with the state building code and is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1. The state building code is currently going through the process

of being updated. As part of that update, amendments are being considered to the provisions in the model code being adopted that deal with stairways. It is reasonable, therefore, to use language in the fire code that makes a generic reference to the building code, so that the codes will correlate regardless of what amendments are made to that document now or in the future. Secondly, language is being added requiring proper means of egress from press box roofs used as camera, video, security or spectator platforms. The amendment is necessary to correlate with a similar amendment being proposed to the state building code. Because the use of press box roofs for human occupancy is becoming more and more common, it is reasonable to have provisions in the code that the fire code official can use to ensure that adequate egress is provided for the occupants to use in case of emergency. Adequate means of egress is one of the basic tenets upon which all model building and fire codes are based. In fact, both the current state fire code and the IFC subscribe to the premise that buildings or structures that are not provided with adequate egress are unsafe (see Sec. 1202.1 of the 1997 UFC and Sec. 1010 of the IFC). In order to minimize the potential for persons becoming trapped on the roof, should there be a fire in the press box below, it is both reasonable and necessary to have minimum means of egress requirements for these roof areas when they are available for use as camera, video, security or spectator platforms.

Subpart 11 amends the section of the code dealing with weather protection for outdoor ramps. This amendment is being made to correlate with an amendment being proposed to the state building code and deletes the requirement that ramps located in climates subject to snow or ice be designed to minimize the accumulation of same. This requirement, which is not found in the current state fire or building codes, could be interpreted to mean that all exterior ramps must be enclosed, or at least covered with a roof or canopy. The requirement is unreasonable, as the cost of compliance would likely outweigh the benefit provided. It would be especially burdensome if enforced retroactively.

Subpart 12 adds a provision requiring a minimum of two exits or exit access doorways from school laboratories that contain hazardous materials and exceed 500 square feet in floor area. This amendment is being made to correlate with an amendment being proposed to the state building code and, in order to keep enforcement consistent with past practice, carries forward a requirement found in the current state building code (see Sec. 1007.3.8 of the 1997 UBC). This is necessary because, as written, the code has less restrictive exiting requirements for laboratories than for classrooms. For purposes of determining required exits, laboratories are calculated at 50 square feet per occupant. As a result, a laboratory could be 2,500 square feet in size before a second exit is required. That is over 10 times what the current code allows and 2.5 times what is allowed for a classroom (which presents less risk than a laboratory containing hazardous materials). According to data provided by the U.S. Fire Administration and obtained through the National Fire Incident Reporting System (NFIRS) for the period from 1996 through 1998, laboratory fires accounted for about 1% of school fires nationally but over 10% of the injuries. Although the current state building code requires a second exit when the floor area of a lab is 200 square feet or more, that has been considered overly restrictive. It is more reasonable to use the 500 sq. ft. trigger, as that brings laboratory requirements in line with those in IFC Sec. 1007.1 for boiler, incinerator and furnace rooms.

Subpart 13 adds an exception to the code allowing the use of the aisle accessway requirements of the code to determine required spacing between tables, displays, furnishings and similar fixtures in office and mercantile occupancies. The amendment is being made at the request of the State Building Codes and Standards Division's 2000 IBC Advisory Committee and is intended to correlate with the state building code. This request is in response to one made by a representative of Minnesota's retail association, who argued that strict enforcement of the 36-inch and 44-inch aisle requirements in the code severely reduces the amount of space that can be used to display merchandise. This presents an unreasonable hardship, as it is estimated that building areas would need to be increased in size by 10% to 30% to accommodate the same number of occupants and functions, thus representing millions of

dollars of additional construction cost for business and retail occupancies. The proposed exception provides a reasonable level of protection by allowing Group B and M Occupancies to follow the same aisle accessway requirements as those applied to, for example, seating at tables in restaurants, where occupant loads are much higher.

Subparts 14 and 15 add language to the code dealing with aisles in bleachers. The amendments are being made at the request of the State Building Codes and Standards Division's 2000 IBC Advisory Committee and are intended to correlate with the state building code. They are a direct result of amendments proposed for Chapter 10 of the building code. It is reasonable to include these amendments in the fire code since it falls to the fire code official to conduct routine inspections to ensure that the provisions of the building code continue to be met during the life of the structure.

Subpart 14 adds a new Sec. 1008.5.4 to the IFC dealing with the width of aisles serving bleachers. The language is based on a nationally recognized standard on bleachers and grandstands that manufacturers and suppliers currently follow (i.e. NFPA 102). Without the amendment, the required aisle width would triple from what has been used successfully and safely for the past 20 years. Subpart 15 adds an exception to the aisle termination requirements of IFC Sec. 1008.7.5 exempting aisles serving bleachers that comply with Sec. 1008.5.4. This language, too, is based on NFPA 102. Without the amendment, the height of a bleacher would be severely limited unless a cross aisle was included. Experience has not shown a safety problem that would justify the considerable expense associated with meeting the new requirements found in the IFC.

Subpart 17 (Formerly: 7510.3710, subpart 5) carries forward an amendment currently found in Appendix I-A, Sec. 2.3 of the 1997 UFC dealing with corridors in existing buildings. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements. It should be noted, however, that because the Group R-1 occupancy classification in the current state fire code includes buildings now classified as Group R-2 Occupancies in the IFC, a reference to R-2 Occupancies is incorporated into the amendment.

Subpart 18 deletes a section in the IFC dealing with openings into exit corridors. The requirements applicable to corridor openings are incorporated into the amendment to IFC Sec. 1010.17 (see 7510.3580, subpart 9).

Subpart 19 adds an exception to the code that allows dead-ends in school buildings constructed prior to the adoption of the first statewide fire code (October 3, 1975) to be up to 35 feet in length provided the building is protected throughout by an automatic sprinkler system. The amendment is necessary in order to keep enforcement consistent with past practice of the State Fire Marshal Division. Since its adoption, the state fire code has limited dead-ends in schools to a maximum of 20 feet in length. Retroactive enforcement of this limit, however, conflicts with the philosophies on which the state public school inspection program, which was established by the Minnesota State Legislature in 1990 (see Minnesota Statutes, section 123B.73), is based. From the inception of the program, there has never been any intention by the State Fire Marshal to require that existing school buildings be upgraded to meet modern code standards. Due to the age, construction and use of many of these buildings, policies were developed allowing the use of automatic fire protection systems as alternatives to correct many fire and life safety deficiencies. This amendment is based on one such policy.

### **Part 7510.3590 – Emergency Procedures**

This part, which deals with reporting of fire alarm signals and evacuation procedures in schools, is being repealed. The amendment dealing with reporting of fire alarm signals is no longer necessary because it is now covered in the code itself (see IFC Sec. 401.3.2). The only difference between IFC Sec. 401.3.2

and current rule is that the IFC removes the discretionary language (i.e. “when required by the chief”) found in the current rule. As explained in the comments to part 7510.3510, in the interest of national uniformity it is reasonable to follow the provisions of the model code, especially since the provisions of IFC Sec. 401.3.2 place no additional burden on those regulated beyond that required in current rule. The amendment dealing with evacuation procedures in schools has been editorially relocated to fit into the format of the IFC (see 7510.3534, subpart 2).

### **Part 7510.3600 – Resurfacing and Refinishing**

This part is being repealed because the amendments are no longer necessary. Subparts 1, 4 and 5 are amendments to a title and subtitles to sections that don’t exist in the IFC. Subpart 1 expands the scope of Article 26 of the 1997 UFC to include roller skating rinks and other public assembly occupancies. This is no longer necessary because the requirements for floor surfacing and finishing operations in IFC Sec. 1510 apply to all occupancies where such operations are undertaken, include roller skating rinks and other public assembly occupancies. The same permits as those required in Subpart 3 can be required by the authority granted in IFC Sections 105.6.18 and 105.6.41. The only difference is that floor finishing permits aren’t required unless the operation involves a space exceeding 350 square feet. This is a reasonable minimum size to use to trigger the permit requirement, especially since very few, if any, local jurisdictions currently require permits for all floor finishing operations.

### **7510.3605. Chapter 14 – Fire Safety during Construction and Demolition**

This amendment adds a section to the code requiring that a construction barrier capable of resisting fire and smoke spread be installed to separate occupied spaces from portions of buildings undergoing construction, remodeling or demolition. This is necessary because building additions and renovations of the type described in the amendment can pose substantial risks to occupants of existing buildings. While such operations are necessary, they are quite hazardous from a fire safety standpoint. Oftentimes the only separation between occupied spaces and construction areas is plastic, which only adds to the fire problem. To provide guidance to the fire code official, the amendment references the draftstop provisions of the building code for details on the construction of such barriers. The required barriers could, for example, consist of one-half-inch-thick gypsum wallboard installed on the occupied side of a wood-stud wall. Openings could be protected with self-closing wood doors. The materials do not have to be fire-rated, as they are only intended to resist the spread of fire and smoke for a sufficient amount of time for notification and evacuation of building occupants.

### **7510.3610. Chapter 22 – Service Stations and Repair Garages**

Subpart 1, which requires that plans for storage, handling or use of Class I (e.g. gasoline) or Class II (e.g. diesel fuel) liquids in aboveground tanks be submitted to the State Fire Marshal for review, is being repealed. This repeal is necessary because the State Fire Marshal Division no longer has the resources in either its headquarters office or in the field to perform this function to the scale to which it is currently involved. Without sufficient resources, there is no way to ensure that plans are, in fact, being submitted for all new tanks being installed, nor can it be verified that installations are being completed in conformance with the code. Experience has shown that it is quite common for changes to be made in a project between the time plans are approved and final installation. Unless a final on-site inspection is made in the field, these changes oftentimes result in non-complying aboveground fuel dispensing systems. Under the circumstances, it is both necessary and reasonable to repeal this amendment, as requiring State Fire Marshal plan reviews likely creates more of a liability to the state than a service to its citizens. The deletion of the requirement for a State Fire Marshal plan review results in a default to the plan review requirement found in IFC Sec. 3401.6, as amended (see 7510.3650, subp. 1a). The required plans under the IFC would typically be submitted to the local jurisdiction instead of the state. Where that jurisdiction does not have the resources or expertise, the local fire chief or code official can require the contractor to submit the plans to the State Fire Marshal for review. The number of plans

being submitted, however, should still be far below that being experienced under the current requirement, as more local jurisdictions are employing their own code officials. State law now requires the State Fire Marshal to charge a fee to offset some of the costs associated with such plan reviews (see Minnesota Statutes, section 299F.011, subdivision 7).

Subparts 2 and 3, which restrict dispensing at service stations to persons 16 years of age or older and require signage to that effect, are being repealed. The prohibition against dispensing by persons under age 16 is a long-standing provision of the state fire code that is outdated, unenforceable and conflicts with model fire codes used across the country (e.g. the UFC, IFC and NFPA 30). It also seems to fly in the face of Minnesota statutes dealing with drivers' licenses. Those statutes allow for persons under age 16 to obtain instructional permits and/or restricted licenses to operate motor vehicles for farm work, yet the state fire code doesn't allow them to dispense fuel. Learning how to safely dispense gasoline is an important part of learning how to operate a motor vehicle responsibly. Expecting a person to automatically be able to perform this function safely just because they're 16 is unrealistic. It is better that children receive proper training and supervision by an adult before the time arrives that they are dispensing on their own. It is not uncommon to see children younger than 16 picking up gasoline for the family lawn mower or snow blower. While this has been happening in violation of current state code, there has not been a rash of fire incidents over the years because of it. It is reasonable, therefore, to delete these amendments. Service station managers who wish to continue the restriction against dispensing by persons under age 16 can still do so, however, under station policy.

Subpart 4 amends the code by carrying forward a restriction found in the current state fire code against the dispensing of Class I or II liquids into the fuel tanks of motor vehicles from aboveground tanks (see Sec. 5202.3.1 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3610, subpart 4). There are two exceptions, however. The first is an exception found in the current state fire code that allows such dispensing under the conditions set forth in what's now IFC Sec. 2206.2.7, as amended (see subpart 5 below). The exception and section reference have been editorially changed to fit into the format of the IFC. The second allows for dispensing from small tanks at resorts and is necessary in order to keep enforcement consistent with past practice of the State Fire Marshal Division. Without this amendment, even small resort gasoline tanks that serve a few people a week would be required to install thousands of dollars worth of equipment to meet the same requirements as the large retail service station serving hundreds of customers a day. In addition, by their very nature, most resorts are located in less populated areas with low amounts of vehicle traffic. The State Fire Marshal Division has been inspecting Minnesota's resorts on a routine basis since 1979. As a result of these inspections, most resorts have upgraded their fueling systems. To require additional upgrades would be unreasonable, especially since there is no fire record here in the state showing a need for additional safeguards on these tanks.

Subpart 5 is basically an editorial renumbering of an existing amendment to fit the format of the IFC. The amendment can currently be found in Sec. 5202.4.1 of the 1997 UFC and sets forth the conditions under which dispensing of Class I or II liquids into the fuel tanks of motor vehicles is allowed. In addition to some necessary reformatting, three other changes are being made to the amendment:

- Provisions are being incorporated that allow the use of larger tanks and reductions in clearance requirements when protected aboveground tanks are used. These provisions are being carried forward from the current state fire code (see Appendix II-F of the 1997 UFC). This is reasonable because such tanks are provided with protection from physical damage, have been tested to provide fire-resistive protection from a high-intensity liquid pool fire exposure and have an excellent fire safety record across the country.
- A requirement is added for a minimum 3 ft. spacing between aboveground tanks. This carries forward a requirement found in the current state fire code (see Table A-II-F-1 of the 1997 UFC). This amendment is necessary because of the deletion of IFC Table 2206.2.3 (see Subpart 7 below).

A minimum 3 ft. separation between tanks is reasonable in order to ensure that there is sufficient space to adequately inspect and service the tanks.

- The provision for lightning protection for aboveground tanks is being changed to require grounding only. This amendment is necessary in order to keep enforcement consistent with past practice of the State Fire Marshal Division. Experience has shown that the lightning protection provision, which was inserted when the rule was originally added to the state fire code in 1989, is overly restrictive. Lightning protection was placed in the rule because of a fear that the many aboveground tanks anticipated to be installed as a result of the new rule would lead to a serious potential for lightning strikes. Actual experience over the years has not borne this out. Grounding has been accepted as an alternative method of compliance for a number of years now. It is reasonable, therefore, to modify the rule to reflect that.

Subpart 6 is being repealed. The original intent behind the amendment was to allow the use of “special-type” dispensers (e.g. card- or coin-operated equipment) at unattended self-service stations. In order to accomplish this, Sec. 5202.4.8 was deleted. The amendment is no longer necessary, as the use of these types of dispensers at unattended self-service stations is now allowed in the IFC itself (see IFC Sec. 2204.3).

Subpart 7 amends the code by deleting IFC Table 2206.2.3. This table establishes minimum separation requirements for aboveground tanks used to dispense fuel into motor vehicles. It is necessary to delete the table as it is overly restrictive and conflicts with separation requirements that have been in the state fire code since 1989. Reasonable separation distances are set forth in Subpart 5 above.

Subpart 8 deletes a section of the code requiring that wharves, docks or floats at marine service stations be used exclusively for fueling of marine craft. This amendment is necessary in order to keep enforcement consistent with past practice of the State Fire Marshal Division as it applies to existing fuel dispensing operations at resorts. Strict enforcement of this requirement would create an unreasonable hardship for Minnesota’s resort industry. Other state regulations exist that limit the size and number of docks on a shoreline. Most resorts do not have the luxury of being able to have one dock to use exclusively for gasoline dispensing. In spite of the fact that other uses have been occurring alongside fuel dispensing on docks at resorts for many years, there is no fire history in the state showing that this has been a problem. It is reasonable, therefore, to delete the requirement.

### **7510.3611. Chapter 23 – High-piled Combustible Storage**

This rule part (Formerly: 7510.3660, subpart 1) carries forward an amendment currently found in Sec. 8102.1 of the 1997 UFC dealing with limited high-piled storage areas in Group M (mercantile) Occupancies. The amendment has been editorially relocated to fit into the format of the IFC. It contains no new requirements.

### **Part 7510.3620 – Oil-burning Equipment**

This part, which deals with waste oil burners and the quantity of fuel oil allowed in a building, is being repealed. These issues are now adequately covered in the code itself, making the amendments unnecessary. Subpart 1 requires that the grade of fuel oil used in a burner shall be that for which the burner is approved and as stipulated by the burner manufacturer. The exact same requirement can be found in IFC Sec. 603.1.4. This subpart goes on to require that the installation and use of waste oil burners comply with Minnesota Statutes, section 299F.015. The reference to the statute is necessary under the current code because the UFC contains no requirements regarding the installation and use of waste oil burners. That’s not the case with the IFC, however. While the statute and the IFC are worded and formatted differently, they contain essentially the same requirements. The main difference between the two is that IFC Sec. 603.1.4 specifically states that waste oil burners are acceptable in Group F, M

and S Occupancies, while the statute can be interpreted to allow such burners in gasoline service stations or commercial garages only and at the discretion of the code official. It is reasonable to follow the provisions of the model code given the safe track record these appliances have shown since first being introduced over 20 years ago. Subpart 2 addresses the quantity of fuel oil allowed in a building. This amendment is no longer necessary as similar requirements can now be found in IFC Sec. 603.3.

### **7510.3625. Chapter 27 – Hazardous Materials – General Provisions**

Subpart 1 is an amendment that is being made to correlate with an amendment being proposed to the state building code. It deletes language that requires that floors and their supporting construction in control areas have a minimum 2-hour fire-resistance rating. This provision conflicts with IFC Table 2703.8.2, which allows 1-hour construction for control areas in buildings three stories or less in height. The deletion of this language is necessary to prevent confusion for architects, property owners and code officials and reasonable because of the undue hardship and practical difficulties the requirement creates for property owners.

Subpart 2 adds provisions to the code dealing with laboratories that use hazardous materials and are located above the third floor in Group B (business), E (educational) and I-2 (healthcare) Occupancies. The amendment is being made at the request of industry and is intended to correlate with a similar amendment being proposed to the state building code. Past and current state building codes have always recognized that teaching and research laboratories in association with hospitals, clinics, schools and colleges are unique and should not necessarily be held to the same requirements as other areas containing hazardous materials. The IFC, as written, however, imposes new restrictions that would make it very difficult for operators of educational and research laboratories in Minnesota to continue the use of their facilities without meeting the new requirements, which would be required any time modifications are made to their facilities. Such modifications occur frequently in the normal course of business, especially in research laboratories. The new provisions are based on compromise language developed through a collaborative effort involving the State Building Codes and Standards Division, State Fire Marshal Division, Minnesota's fire service and representatives of the constituencies directly affected by the amendment. Varying interpretations of the current state building code have resulted in some code officials requiring 1-hour separation of laboratories, while others have required at least 2-hour separations. The amendment is an attempt to find middle ground between the two philosophies by providing more reasonable requirements that still maintain at least a minimum level of fire safety. Rather than classifying educational and research laboratories as "hazardous" (setting very restrictive construction requirements, but allowing large quantities of hazardous materials), the amendment instead uses a lesser classification, but limits the number, placement and separation of laboratories using such materials.

### **Part 7510.3630 – Explosive materials**

Subparts 1 and 2 deleted code requirements dealing with permits and required bonds for the storage, possession, display and use of explosives. These deletions can now be found in 7510.3640, subp. 1.

### **7510.3640. Chapter 33 – Explosives and Fireworks**

Subpart 1 (Formerly: 7510.3630, subparts 1 and 2) deletes provisions in the IFC dealing with permits and required bonds for the storage, possession, display and use of explosives. There are two main reasons why these provisions have been deleted in past code adoptions. First, to avoid conflicts with Minnesota Bureau of Criminal Apprehension (BCA) regulations, which contain requirements addressing the issue. This is consistent with the intent of Minnesota Statutes, section 299F.011, subdivision 1, which requires that consideration be given to statewide specialty codes presently in use in Minnesota when adopting the state fire code. Second, to avoid conflicts with requirements for the posting of bonds set forth in local ordinances. It has been held that it is most reasonable that decisions about whether a

bond should be required and, if so, the amount of any such bond should be made at the local level and not dictated by the state. In the current state fire code, Subpart 1 contains requirements relating to permits for fireworks displays. Those requirements are being editorially relocated to Subpart 4 below to fit into the format of the IFC.

Subparts 2 and 3, which deal with the construction of mortars for fireworks displays and reloading of paper and high density polyethylene (HDPE) mortars, are being repealed. This is being done at the request of representatives of the fireworks industry. The construction requirements relating to mortars are adequately covered in the national standards referenced by IFC Sec. 3308.1. These standards also set forth conditions under which paper and HDPE mortars can be safely reloaded during fireworks displays. It is reasonable to follow the national standard, as this brings the state fire code more into line with safe practices being followed in other states across the country.

Subpart 4 is an existing amendment currently found in Sec. 7801.3.1.2 of the 1997 UFC dealing with permits for fireworks displays. The amendment has been editorially relocated (from Subpart 1 above) and reworded to fit into the format of the IFC. It contains no new requirements. The language stricken through in the amendment is deleted because the wording can now be found in IFC Sec. 3308.2.1.

Subpart 5 deletes IFC Sec. 3308.11, which deals with retail display and sale of fireworks. This section is being deleted for two reasons. First, the sale, possession or use of most consumer fireworks is illegal in the State of Minnesota (see Minnesota Statutes, section 624.21). Second, with recently passed legislation this section could be applied to the display and sale of the nonexplosive, nonaerial (or novelty) consumer fireworks now legal within the state. 2002 Minn. L. sec. 2. IFC Sec. 3308.11 as written states that, "Fireworks displayed for retail sale shall not be made readily accessible to the public." While it might be argued at some point that there should be statewide regulations that address the retail sale of novelty fireworks (presently being handled by local ordinance), to do so now would be premature at best. It must first be determined what problems, if any, are created by the retail sale of novelty fireworks, so that any regulations developed are both comprehensive and fair. Until that happens, it's difficult to tell if the requirements in IFC 3308.11 are overly restrictive or not restrictive enough.

#### **7510.3650. Chapter 34 – Flammable and Combustible Liquids**

Subpart 1, which requires that plans for storage, handling or use of flammable liquids in aboveground tanks in bulk plants, chemical plants, refineries and processing plants be submitted to the State Fire Marshal for review, is being repealed. This repeal is necessary because the State Fire Marshal Division no longer has the resources in either its headquarters office or in the field to perform this function to the scale to which it is currently involved. Without sufficient resources, there is no way to ensure that plans are, in fact, being submitted for all new tanks being installed, nor can it be verified that installations are being completed in conformance with the code. Experience has shown that it is quite common for changes to be made in a project between the time plans are approved and final installation. Unless a final on-site inspection is made in the field, these changes oftentimes result in non-complying aboveground tank installations. Under the circumstances, it is both necessary and reasonable to repeal this amendment, as requiring State Fire Marshal plan reviews likely creates more of a liability to the state than a service to its citizens. The deletion of the requirement for a State Fire Marshal plan review results in a default to the plan review requirement found in IFC Sec. 3401.6, as amended (see Subp. 1a below). The required plans would typically be submitted to the local jurisdiction instead of the state. Where that jurisdiction does not have the resources or expertise, the local fire chief or code official can require the contractor to submit the plans to the State Fire Marshal for review. The number of plans being submitted, however, should still be far below that being experienced under the current requirement, as more local jurisdictions are employing their own code officials. State law now requires the State Fire

Marshal to charge a fee to offset some of the costs associated with such plan reviews (see Minnesota Statutes, section 299F.011, subdivision 7).

Subpart 1a amends the code by adding a section giving the code official the authority to require that plans be submitted for review and approval prior to the installation of any aboveground or underground tank intended for the storage, handling or use of flammable or combustible liquids. This amendment is necessary because of the deletion of the State Fire Marshal plan review requirement (see Subpart 1 above). The amendment mandates the submission of plans only when required by the code official. It is reasonable to use discretionary language in this case since, as mentioned previously, not all local jurisdictions have the resources or expertise to conduct plan reviews, nor is it the intent of the State Fire Marshal to require that they provide those resources.

Subpart 1b adds a definition for “Intermediate Bulk Container (IBC)” to the code. This definition is being added because the term is used in subparts 1c and 1d below. The definition is necessary to clarify the description of this new type of container and distinguish it from portable (metal) tanks that are already defined.

Subpart 1c adds a section to the code dealing with the application of the tables in Chapter 34. These tables address automatic sprinkler protection requirements for storage of flammable and combustible liquids and are the same as those currently found in the 1997 UFC [see Tables 7902.5-F and 7902.5-H through 7902.5-J]. The amendment clarifies that the tables apply only to liquids stored in metal containers. New container construction and sizes have appeared, such as plastic intermediate bulk containers (IBCs), since the tables in the IFC were developed. Full scale testing clearly shows that the type of container used to store the liquid is critical in determining the level of fire hazard. Non-metallic containers tend to fail early in a fire, resulting in a rapidly spreading pool fire. Therefore, repeated full scale testing proves that systems designed to protect metal containers will fail dramatically when used to protect non-metallic containers. This amendment is necessary to assure the IFC sprinkler protection criteria will be applied only to metal containers storing flammable and combustible liquids. Because sprinkler protection criteria for plastic containers is undergoing significant changes at the current time, guidance for these containers is referenced to other nationally recognized standards or full scale test data.

Subpart 1d adds a section to the code that specifies the type of automatic sprinkler protection required over containers, IBCs and portable tanks storing flammable or combustible liquids. The amendment is necessary because all of the protection criteria given in the IFC depend on water being discharged immediately upon sprinkler activation. Due to the rapid development of fires involving the storage of flammable and combustible liquids, dry-type sprinkler systems are inadequate to handle the hazard. Add to this IBCs. IBCs are a very recent addition to the types of vessels available to hold liquid materials. Since they are constructed of blown plastic materials, they are inexpensive to construct and can be manufactured to hold hundreds of gallons of liquid. When subject to heating during a fire, IBCs release their contents very quickly. This is a problem when the container is storing flammable or combustible liquids, since this leads to rapid spread of fire. This amendment is reasonable because there is currently nothing in the IFC that warns property owners about unacceptable delays produced by dry-pipe sprinkler systems.

Subpart 1e adds an exception to the requirement that transfer operations (e.g. loading racks at bulk plants) be enclosed by a noncombustible fence. The amendment is being made at the request of a representative of Minnesota's petroleum industry. As an alternate to the fence, the exception allows the use of other methods to prevent the dispensing of flammable and combustible liquids by unauthorized persons – locking of all control valves in the closed position or locking the power supply to the pumps in

the closed position. Because of the considerable expense of installing and maintaining fencing, it is reasonable to amend the code to include alternatives that provide a level of protection equivalent to that required by the code.

Subpart 2 is an existing amendment currently found in Sec. 7904.5.4.2.1 of the 1997 UFC dealing with the transfer of flammable liquids from tank vehicles or tank cars. The amendment has been editorially renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 3 is an existing amendment currently found in Sec. 7904.5.4.2.2 of the 1997 UFC dealing with the transfer of motor vehicle fuels from tank vehicles. The amendment has been editorially renumbered to fit into the format of the IFC. It contains no new requirements.

### **Part 7510.3660 – High-piled Combustible Storage**

This part, which deals with limited high-piled storage areas in mercantile occupancies, is being repealed because the amendment dealing with this issue has been editorially relocated to fit into the format of the IFC (see 7510.3611).

### **7510.3670. Chapter 38 – Liquefied Petroleum Gases**

This is an existing amendment that can currently be found in Article 82 of the 1997 UFC. As per past practice, the amendment deletes the chapter in the code dealing with LP-gases in its entirety and replaces it with another nationally recognized standard. In addition to editorial renumbering to fit the format of the IFC, three other changes are being made to the amendment:

- The 1995 edition of NFPA 58, *Liquefied Petroleum Gas Code*, is being replaced with the 2001 edition of the standard. This is being done at the request of Minnesota's propane industry and is consistent with past practice begun with the adoption of the 1991 UFC on August 23, 1993, which is to incorporate the most current national standard into the state fire code. This is both necessary and reasonable in order to keep current with new technologies, methods and materials.
- Sec. 3.2.10.1 of NFPA 58 is being amended to remove the discretion given to code officials to allow the installation of propane tanks on roofs of buildings. This is being done at the request of the state's propane industry and fire service. Propane tanks on rooftops present a number of problems. Should there be a fire problem involving the tank, access to the tank is very difficult. Something as simple as a leaking valve could lead to propane pooling on the roof, while vapors drift downward through vertical openings (e.g. stairways, elevators and other shafts) into the building. A structure fire could expose such tanks to very high temperatures, which could lead to a catastrophic failure of the tank. The national standard was changed to allow propane tanks on roofs with the publication of the 1998 edition of NFPA 58. This change to the national standard was made to allow for a practice common in Mexico, thus making the standard available for international application. A provision was added to require the approval of the authority having jurisdiction prior to installing a large propane tank on a roof. In addition to the safety considerations, it is reasonable to remove the discretion in order to have a uniform requirement that's applicable throughout the state. It should be noted that, to correlate with this amendment, Sections 3.2.10.2 and 3.4.9.1 of NFPA 58 are being deleted.
- Language that requires that plans for certain LP-gas tank installations be submitted to the State Fire Marshal for review, is being repealed. This repeal is necessary because the State Fire Marshal Division no longer has the resources in either its headquarters office or in the field to perform this function to the scale to which it is currently involved. Without sufficient resources, there is no way to ensure that plans are, in fact, being submitted for all new tanks being installed, nor can it be verified that installations are being completed in conformance with the code. Experience has shown that it is quite common for changes to be made in a project between the time plans are approved and final installation. Unless a final on-site inspection is made in the field, these changes oftentimes result in non-complying installations. Under the circumstances, it is both necessary and reasonable to

repeal this amendment, as requiring State Fire Marshal plan reviews likely creates more of a liability to the state than a service to its citizens. The deletion of the requirement for a State Fire Marshal plan review results in a default to the plan review requirement found in Sec. 1.4.1 of NFPA 58. The required plans would typically be submitted to the local jurisdiction instead of the state. Where that jurisdiction does not have the resources or expertise, the local fire chief or code official can require the contractor to submit the plans to the State Fire Marshal for review. The number of plans being submitted, however, should still be far below that being experienced under the current requirement, as more local jurisdictions are employing their own code officials. State law now requires the State Fire Marshal to charge a fee to offset some of the costs associated with such plan reviews (see Minnesota Statutes, section 299F.011, subdivision 7).

#### **7510.3674. Chapter 45 – Referenced Standards**

This amendment updates seven NFPA Standards referenced by the IFC to the most current edition of those standards. NFPA Standards 13, 13D and 13R are being updated to the 1999 editions at the request of the Minnesota Advisory Council on Fire Protection Systems. As mentioned previously, NFPA 58 is being updated to the 2001 edition at the request of the Minnesota propane industry. NFPA 72 is being updated to the 1999 edition at the request of the state's fire alarm industry. NFPA 96 is being updated to the 2001 edition at the request of the Minnesota State Building Codes and Standards Division's Mechanical Code Advisory Committee to correlate with proposed amendments to the state mechanical code. NFPA 1123 is being updated to the 2000 edition at the request of representatives of the fireworks industry. It is both necessary and reasonable to reference the most current editions of these heavily used standards in order to keep current with new technologies, methods and materials.

#### **7510.3675. Chapter 46 – Adult Day Care Centers, Residential Hospice Facilities and Supervised Living Facilities**

This rule part (Formerly: 7510.3540) carries forward amendments currently found in Article 8 of the 1997 UFC, as amended by Minnesota Rules, part 7510.3540. The amendments are being editorially relocated to fit into the format of the IFC. Only two major changes are being made to the language in these subparts as it appears in current rules:

- Occupancy designations have been changed to be compatible with the classifications used in the IFC.
- Provisions are being added for residential hospice facilities. This amendment is being made at the request of the Minnesota Department of Health (MDH), which is proposing to promulgate rules governing a new category of licensed health care provider known as residential hospices. In 1988, MDH convened a Residential Hospice Task Force to develop minimum standards for these types of facilities. The task force felt that, while it was important to maintain as much of a residential atmosphere in these facilities as possible, it was equally important to have minimum standards for fire safety. Given that residential hospices house occupants that are mostly incapable of taking action for their own self-preservation, the task force determined that such facilities must be protected as specified in Chapter 22 of NFPA 101 in order to be classified as residential occupancies.

#### **Part 7510.3680 – Motion Picture Projection**

This rule part, which requires that ventilation of movie projection rooms and projection equipment be provided and maintained in accordance with the building code, is being repealed. This amendment is no longer necessary because the same requirement now exists in the code itself (see IFC Sec. 306).

#### **Part 7510.3690 – Electrical Equipment and Wiring**

This rule part, which prohibits the use of unlisted electrical appliances, is being repealed. This amendment is no longer necessary because the same requirement now exists in the code itself (see IFC Sec. 605.7).

## **Part 7510.3700 – Standards**

This rule part is being repealed. The requirement in Subpart 1 that new correctional facilities be constructed in conformance with the building code is no longer necessary because the code itself now requires that all new construction comply with the building code (see IFC Sec. 102.4). The original intent behind Subpart 2 was to delete a reference to a UFC Standard dealing with LP-gas. Because the standard does not exist in the IFC, the deletion amendment is no longer necessary.

### **7510.3710. Amendments to Appendices of International Fire Code**

Subpart 1 adopts Appendix I, which contains requirements for special locking arrangements in healthcare occupancies, as part of the state fire code. This appendix was adopted as part of the current state fire code (see Appendix II-L of the 1997 UFC, as amended by Minnesota Rules, part 7510.3710, subpart 12). References to eight other appendices, which no longer exist in the IFC, are being deleted (i.e. Appendices I-A, I-C, II-A, II-B, II-C, II-F, IV-A and VI-D). The provisions of Appendix I-A set minimum requirements that apply to existing buildings. As explained earlier in the comments to proposed part 7510.3510, provisions for existing buildings are now spread throughout the code (see IFC Chapters 7, 9 and 10). Stairway signage requirements similar to those found in Appendix I-C can now be found in IFC Sec. 1005.3.2.4. Most of the provisions of Appendix II-A, which deals with hazardous fire areas, are now spread throughout the code (see IFC Chapters 3, 5, 6 and 33). The provisions of Sec.16, however, were carried forward in proposed part 7510.3532, subpart 5. Requirements similar to those in Appendix II-B for protection of tanks in locations subject to flooding can now be found in IFC Sec. 3404.2.7.8 and NFPA 30. Provisions similar to those found in Appendix II-C dealing with marinas can now be found in another nationally recognized standard (i.e. NFPA 303), which can be accessed through IFC Sec. 102.7. The provisions of Appendix II-F dealing with protected aboveground tanks are now incorporated into IFC Chapter 22, as amended by proposed part 7510.3610, subpart 5. The interior floor finish requirements of Appendix IV-A are replaced with an amendment to IFC Chapter 8 that references the building code (see proposed part 7510.3542, subpart 1). This is necessary to correlate with the state building code (requirements similar to those in the appendix can be found in Sec. 804 of the 2000 *International Building Code*). Appendix VI-D deals with the issuance of citations for violations of the fire code. No such requirements are being carried forward into the IFC, as the State Fire Marshal does not issue citations. For local jurisdictions that wish to do so, it's more appropriate that they follow the provisions of the state criminal code found in Minnesota Statutes, section 609.

Subparts 2 through 10 are being repealed. Subpart 2 is no longer necessary because of the format of the IFC. The other subparts are no longer needed because either the requirements are now covered in the code itself or they have been relocated to fit into the format of the IFC. The standards for existing Group I Occupancies are now covered in the amendments to IFC Chapter 1. Exiting and corridor construction issues are now covered in IFC Chapter 10 and amendments thereto. Provisions for protection of vertical openings and separation of occupancies and hazardous areas are now covered in IFC Chapter 7 and amendments thereto. Provisions for basement sprinklers, smoke detectors and standpipes are now covered in Chapter 9 and amendments thereto.

Subpart 11 is an existing amendment currently found in Optional Appendix II-K of the 1997 UFC dealing with the use of open flame devices on residential balconies. The amendment has been editorially renumbered to fit into the format of the IFC. It contains no new requirements.

Subpart 12 is an existing amendment currently found in Appendix II-L of the 1997 UFC dealing with the use of special locking arrangements in healthcare facilities. The amendment has been editorially renumbered to fit into the format of the IFC. It contains no new requirements, but has been modified to remove the requirement that once the locks are deactivated, the doors can only be relocked manually at each door. It has been found that this requirement has led to unauthorized residents (e.g. Alzheimer's

patients) leaving healthcare facilities, jeopardizing their safety. Sometimes patients leave before all the doors can be relocked. In other cases, staff forget to relock a door or two because of the press of their other duties or unavoidable distractions. For this reason it is reasonable to allow all the doors to relock upon activation of one manually operated switch or activating device installed at an approved location in the building (e.g. nurse's station). This change is not intended to allow the automatic relocking of exit doors when the fire alarm system is reset. While the fire alarm system might be able to be reset, a hazard could still exist in the building that would necessitate having the exits available to full and instant use by the staff, residents or visitors. Relocking should only occur after it has been verified that the danger has passed.

**Renumbering instruction**

Various subparts within these rules are being renumbered so that the materials covered in those subparts follow in the code's chronological order.

**Repealer**

Various rules are being repealed as part of the adoption of the 2000 IFC. The need for and reasonableness of the repeals is explained in the text of this document under the specific rule parts identified in the repealer.

Conclusion

Based on the foregoing, the Department of Public Safety – State Fire Marshal Division's proposed rules are both necessary and reasonable.

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Date

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Charles R. Weaver, Jr.  
Commissioner, Minnesota Department of Public Safety

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Date

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Thomas R. Brace, State Fire Marshal