

DHCD – Division of Building and Fire Regulation
2006 Code Change Cycle

COMPILATION DOCUMENT
(of all code changes received with staff evaluations)

PART V

Code changes beginning with a “C” are to the Virginia Construction Code; with an “M” are to the Virginia Maintenance Code; with an “F” are to the Virginia Statewide Fire Prevention Code; with an “I” are to the Virginia Industrialized Building Safety Regulations; with an “A” are to the Virginia Amusement Device Regulations, and with a “CS” are to the Virginia Certifications Standards. The order is as follows: C – M – F – I – A – CS.

PART I contains page numbers 1 – 99 and code changes C-103.1 – C-310.6(R408.1)

PART II contains page numbers 100 – 199 and code changes C-310.6(R602.3) – C-408.8

PART III contains page numbers 200 – 303 and code changes C-503 – C-2803.1(M701.1)

PART IV contains page numbers 304 – 408 and code changes C-2804.1(FG310.1) – C-3501.1-c

PART V contains page numbers 409 – 502 and code changes C-3501.1-d – F110.1

PART VI contains page numbers 503 – 606 and code changes F-111.1 – CS-41

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VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Construction Code
Code Change No. C-3501.1-d**

Nature of Change: (text is on code change form)

To update the National Fire Protection Association (NFPA)'s standards in the International Building Code and the International Fire Code to the latest available standards.

Proponent: Chesterfield County Fire and EMS

Staff Comments:

Staff notes that the proposal does not clearly indicate how the updated standards are to be used. The list of standards appears to be copied from the International Fire Code (IFC), as the International Building Code (IBC) uses additional and different standards. However, the proponent states that the proposal is to update the standards in both codes. An additional problem is that the Virginia Construction Code, through its use of the IBC, references the IFC for construction purposes and the proposal does not update the referenced standards in the IFC when used as a reference standard under the IBC. The code change was considered by Workgroups 2 and 3 and generally received consensus, however, some concerns were raised over such a whole scale updating of the referenced standards. The newer standards are not contained in the 2007 Supplement to the I-Codes. Copies of the standards were not provided by the proponent, however summaries of the changes in the standards were provided. If the newer standards are to be approved, staff suggests that they be updated in the IBC as a referenced standard under the Virginia Construction Code, in the IFC as a referenced standard under the IBC (as used in the Virginia Construction Code) and in the IFC as a referenced standard under the Virginia Statewide Fire Prevention Code.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

**VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CODE CHANGE FORM**

Address to submit to: DHCD, The Jackson Center 501 North Second Street Richmond, VA 23219-1321 Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.virginia.gov	8/6/07	Document No. <u>C-3501.1-d</u> Committee Action: _____ BHCD Action: _____
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Submitted by: Francis J. Kinnier, Jr, CBO, CFO, CFPS Representing: Chesterfield Fire&EMS

Address: 9800 Government Center Parkway
Chesterfield, Virginia 23832 Phone No.: 804-768-7961

Regulation Title: VUSBC (IBC); SPFC (IFC) 2006 Editions
Section No(s): Chapter 35 (IBC); Chapter 45 IFC 2006 Editions

Amended: July 30, 2007

Proposed Change:

Proposed Change: NFPA Reference Standards – Chapter 35 (IBC); Chapter 45 (IFC)

- NFPA 10-02 TO 10-07 (IFC only)
- NFPA 13-02 TO 13-07 (IBC and IFC)
- NFPA 13D-02 TO 13D-07 (IBC and IFC)
- NFPA 13R-02 TO 13R-07 (IBC and IFC)
- NFPA 14-03 TO 14-07 (IBC and IFC)
- NFPA 20-02 TO 20-07 (IFC only)
- NFPA 24-02 TO 24-07 (IFC only)
- NFPA 25-02 TO 25-08 (IFC only)
- NFPA 30B-02 TO 30B-07 (IFC only)
- NFPA 33-03 TO 33-07 (IFC only)
- NFPA 72-02 TO 72-07 (IBC and IFC)
- NFPA 704-04 TO 704-07 (IBC and IFC)

Supporting Statement:

This change replaces the requested code change submitted on March 22, 2007 and now incorporates the correct edition of NFPA 25. The change reflects a change from the incorrectly identified 2007 edition to correct 2008 edition of NFPA 25 as replacement for the 2002 edition of NFPA 25 cited in the 2006 edition of the IFC. This code change is being submitted at the request of the DHCD work group that met on July 26, 2007. The remainder of the March 22, 2007 code change request remains as originally submitted. The 2008 edition of NFPA 25 correlates with the 2007 edition of NFPA 13 as a companion document (previous documentation not resubmitted with this change per Vernon Hodge – see attached e-mail of June 22, 2007 from Vernon Hodge).

The other major consideration that should be viewed is that these reference standards do not effect when a system is required. That remains the sole responsibility of the International Building Code and the International

Fire Code (with Virginia Amendments). These standards are the “nuts and bolts” of the installation criteria for the installation of the said system and equipment.

The proposed adoption of the 2006 editions for the International Building and Fire Codes reference older editions of the NFPA standards that are used for the design of fire protection systems. In most cases the current reference standards in the 2006 IBC and IFC are either the 2000, 2001 or 2002 editions of these standards. This code change addresses the adoption of the 2007 editions of several of the NFPA standards and the 2008 edition of NFPA 25 as opposed to standards that are between 6 and 8 years old. Advances in new technology and revisions to these standards have produced more client friendly requirements.

Attached is documentation to support this request. There are six documents included with this request that outline major changes to the 2007/2008 editions of these reference standards.

We urge you to consider our request for a code modification that will adopt the 2007 edition of these reference standards to place the Commonwealth of Virginia in the forefront of protection of people, property and business using new technology. The changes in the 2007/2008 edition of the cited reference standards in almost all cases produce a cost savings to our client base of contractors, developers and citizens.

The adoption of the 2007/2008 edition of the reference standards will also increase the use of performance based design vs. the prescriptive method of determining adequate levels of protection of people, property and business in the Commonwealth.

Attachments:

Supporting Document One – Explanation of changes and impact on client group in NFPA reference standards effected by requested code change – Francis J. Kinnier, Jr. CBO, CFO, CFPS

Supporting Document Two – (Article) Top Ten Changes in the 2007 Edition of NFPA 13 – Chris Dubay, P.E. – NFPA

Supporting Document Three – Overview of Changes to NFPA Standards NFPA 13D, NFPA 13R, NFPA 20 and NFPA 24 – Provided by NFPA.

Supporting Document Four – Major changes to NFPA 30B – Provided by Robert P. Benedetti, CSP, P.E. – NFPA

Supporting Document Five – Major changes to NFPA 33 – Provided by Robert P. Benedetti, CSP, P.E. – NFPA

Supporting Document Six – Major changes to NFPA 72 – Provided by Richard Roux – NFPA

**VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
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Richmond, VA 23219-1321

Tel. No. (804) 371 – 7150
Fax No. (804) 371 – 7092
Email: bhcd@dhcd.virginia.gov

7/2/07

Document No. _____

Committee Action: _____

BHCD Action: _____

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- NFPA 25-02 TO 25-07 (IFC only)
- NFPA 30B-02 TO 30B-07 (IFC only)
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Supporting Statement:

This change replaces the requested code change submitted on March 22, 2007 and now incorporates the 2007 edition of NFPA 25 as replacement for the 2002 edition of NFPA 25 cited in the 2006 edition of the IFC at the request of the DHCD work group. The remainder of the March 22, 2007 code change request remains as originally submitted. The 2007 edition of NFPA 25 correlates with the 2007 edition of NFPA 25 as a companion document (previous documentation not resubmitted with this change per Vernon Hodge – see attached e-mail of June 22, 2007 from Vernon Hodge).

The proposed adoption of the 2006 editions for the International Building and Fire Codes reference older editions of the NFPA standards that are used for the design of fire protection systems. In most cases the current reference standards in the 2006 IBC and IFC are either the 2000, 2001 or 2002 editions of these standards. This code change addresses the adoption of the 2007 editions of several of the NFPA standards as opposed to

standards that are between 6 and 8 years old. Advances in new technology and revisions to these standards have produced more client friendly requirements.

Attached is documentation to support this request. There are six documents included with this request that outline major changes to the 2007 editions of these reference standards.

We urge you to consider our request for a code modification that will adopt the 2007 edition of these reference standards to place the Commonwealth of Virginia in the forefront of protection of people, property and business using new technology. The changes in the 2007 edition of the cited reference standards in almost all cases produce a cost savings to our client base of contractors, developers and citizens.

The adoption of the 2007 edition of the reference standards will also increase the use of performance based design vs. the prescriptive method of determining adequate levels of protection of people, property and business in the Commonwealth.

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Supporting Document Six – Major changes to NFPA 72 – Provided by Richard Roux – NFPA

Kinnier, Frank

From: Hodge, Vernon [Vernon.Hodge@dhcd.virginia.gov]
Sent: Friday, June 22, 2007 1:50 PM
To: Kinnier, Frank
Subject: RE: Code Change Proposal to Update Referenced Standards

No, we'll put the supporting documentation you already submitted with the new form. If you want to submit supporting documentation concerning NFPA 25, we'll just add that to the documents already submitted.

Thanks,

Vernon Hodge, Technical Services Manager
Technical Assistance Services Office (TASO)
Division of Building and Fire Regulations
Va. Department of Housing and Community Development
Direct Dial: (804) 371-7174
Email: Vernon.Hodge@DHCD.virginia.gov
Blackberry: (804) 382-2973

From: Kinnier, Frank [mailto:KinnierF@chesterfield.gov]
Sent: Friday, June 22, 2007 1:25 PM
To: Hodge, Vernon
Subject: RE: Code Change Proposal to Update Referenced Standards

Vernon - I'm ok with the addition of NFPA 25-2007 edition to my code change proposal. I will resubmit the completed form to DHCD. Do you need the supporting data along with the revised form? Frank

Francis J. Kinnier, Jr. CBO, CFO, CFPS
Deputy Fire Marshal
Chesterfield Fire and Life Safety Division
(804)768-7961

-----Original Message-----

From: Hodge, Vernon [mailto:Vernon.Hodge@dhcd.virginia.gov]
Sent: Friday, June 22, 2007 10:15 AM
To: Kinnier, Frank
Cc: Rodgers, Emory; Eubank, Paula
Subject: Code Change Proposal to Update Referenced Standards

Deputy Fire Marshal Kinnier:

Your code change proposal to use the latest reference standards was considered by one of our workgroups yesterday and the comment was made to consider NFPA 25 in the list as evidently a newer edition of it has recently been approved. We agreed to pass the comment along to you for consideration. Otherwise, your proposal generally received support although normally we do not make whole-scale changes to the referenced standards sections of the model codes.

Should you decide to resubmit the proposal to include NFPA 25, attached is our newest code change form, which is easier to use than the older one.

Please let me know if you have any questions or comments.

Message

Vernon Hodge, Technical Services Manager
Technical Assistance Services Office (TASO)
Division of Building and Fire Regulations
Va. Department of Housing and Community Development
Direct Dial: (804) 371-7174
Email: Vernon.Hodge@DHCD.virginia.gov
Blackberry: (804) 382-2973

Hodge, Vernon

From: Rodgers, Emory
Sent: Monday, April 09, 2007 7:06 AM
To: Hodge, Vernon; Eubank, Paula
Subject: FW: Code CHange USBC Use of new NFPA standards

From: Rodgers, Emory
Sent: Monday, April 09, 2007 7:05 AM
To: 'KinnierF@chesterfield.gov'
Cc: duplerb@chesterfield.gov; 'Witt, Rick'
Subject: Code CHange USBC Use of new NFPA standards

Frank: The Board has on occasion adopted the most recent standards beyond those not mentioned in the proposed adopted IBC or IFC.

I have copied Bill and Rick as you might want to discuss with them your proposal as this affects the USBC for construction and indirectly the SFPC for maintenance of fire protection systems.

The USBC already allows the building official to use later standards for construction and so your change can be implemented in any case based on the project.

You have provided a comprehensive list of changes for installation of these systems and noted where it is a cost savings or easier to understand and enforce.

Are there any SFPC testing and maintenance changes to be noted? You know these standards cannot be used retroactively either on existing systems or to have owners make changes?

Do the changes present conflict with the IBC or the IFC as referenced by the IBC and USBC?

Instead of so many new standards why not 3 or less? We normally advise the Board to make too many changes as allowing the ICC do this work avoids problems in correlation. Thanks.

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>4/5/07</p>	<p>Document No. _____</p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>Francis J. Kinnier, Jr. CBO, CFO, CFPS</u> Representing: <u>Chesterfield Fire&EMS</u></p> <p>Address: <u>9800 Government Center Parkway</u> <u>Chesterfield, Virginia 23832</u> Phone No.: <u>804-768-7961</u></p> <p>Regulation Title: <u>VUSBC (IBC); SPFC (IFC) 2006 Editions</u> Section No(s): <u>Chapter 35 (IBC); Chapter 45 IFC 2006 editions</u></p>		

Proposed Change: NFPA Reference Standards – Chapter 35 (IBC); Chapter 45 (IFC)

NFPA ~~10-02~~ TO 10-07 (IFC only)

NFPA ~~13-02~~ TO 13-07 (IBC and IFC)

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NFPA ~~13R-02~~ TO 13R-07 (IBC and IFC)

NFPA ~~14-03~~ TO 14-07 (IBC and IFC)

NFPA ~~20-02~~ TO 20-07 (IFC only)

NFPA ~~24-02~~ TO 24-07 (IFC only)

NFPA ~~30B-02~~ TO 30B-07 (IFC only)

NFPA ~~33-03~~ TO 33-07 (IFC only)

NFPA ~~72-02~~ TO 72-07 (IBC and IFC)

NFPA ~~704-04~~ TO 704-07 (IBC and IFC)

Supporting Statement: The proposed adoption of the 2006 editions for the International Building and Fire Codes reference older editions of the NFPA standards that are used for the design of fire protection systems. In most cases the current reference standards in the 2006 IBC and IFC are either the 2000, 2001 or 2002 editions of these standards. This code change addresses the adoption of the 2007 editions of several of the NFPA standards as opposed to standards that are between 6 and 8 years old. Advances in new technology and revisions to these standards have produced more client friendly requirements.

Attached is documentation to support this request. There are six documents included with this request that outline major changes to the 2007 editions of these reference standards.

We urge you to consider our request for a code modification that will adopt the 2007 edition of these reference standards to place the Commonwealth of Virginia in the forefront of protection of people, property and business using new technology. The changes in the 2007 edition of the cited reference standards in almost all cases produce a cost savings to our client base of contractors, developers and citizens.

The adoption of the 2007 edition of the reference standards will also increase the use of performance based design vs. the prescriptive method of determining adequate levels of protection of people, property and business in the Commonwealth.

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Supporting Document One

MEMO

Date: March 22, 2007

To: Department of Housing and Community Development – Code Change Committee

From: Francis J. Kinnier, Jr. CBO, CFO, CFPS

Re: Supporting Data and Synopsis of Changes to Codes from 2002 edition to 2007 edition NFPA Standards 13, 13D, 13R, 20, 24, 30B, 33 and 72.

The following items outline the major changes to the 2007 editions of the standards listed below. Additionally,

NFPA 13 – Installation of Sprinkler Systems

1. The definition of a compartment, most commonly applied to the small room rule for system design, has been modified to eliminate the previously “always required” lintel for determining what a compartment is. This will be beneficial to the construction industry and is less restrictive.
2. The definition of Ordinary Hazard Group II has been clarified with examples of certain commodities that qualify for inclusion within the Ordinary Group II class that to date has been occupancy defined. This change clarifies the inclusion of certain commodities that can be protected by an Ordinary Hazard Group II design instead of higher storage type sprinkler densities when the height of storage is less than twelve feet. This will benefit the client group.
3. Modified the acceptable methods for testing a dry pipe valve sprinkler system. Added the use of a computer program to determine system performance. This permits a less expensive method to determine system performance using technology.
4. Clarified the need for sprinklers in high-bay areas. No cost impact on client.
5. Specifically permits the use of a single system for the protection of small, attached buildings. This change will reduce the cost of installation in some cases.
6. Clarifies the use of a water curtain as an acceptable means of protecting an unenclosed floor opening; resolved conflict between NFPA 101 and NFPA 13. Provides a potentially less costly method of protection of open stairwells for the client.
7. Clarifies the requirement for a thermal barrier for the walls and ceiling of a tub and/or shower enclosure. The use of the thermal barrier eliminates the installation

of a sprinkler in a bathroom 55 square foot or less. Previous editions required the thermal barrier on all bathroom walls; code change limits the need for the thermal barrier to the tub and/or shower enclosure. This will produce a cost saving to the client.

8. Eliminates the requirement for small-diameter hose stations in storage occupancies. This will produce a substantial cost savings from an installation and maintenance perspective.
9. Clarifies system design for storage arrangements when the ceiling or roof height is greater than 30 feet. Permits design to be at the twenty-foot level when the distance between the ceiling and top of the storage is greater than twenty feet. This produces a less restrictive application of the amount of protection required and is based on actual research.
10. Clarifies that anti-freeze system with capacities greater than 40 gallons are permitted. Requires secondary set of calculation by the Darcy-Weisbach formula based on the anti-freeze solution viscosity. Will permit cheaper protection method for larger unheated areas. Will be less expensive when compared to a dry pipe system from an installation and maintenance perspective.
11. Most major change to NFPA 13 is in the area of seismic bracing. NFPA now correlates with the American Society of Civil Engineers ASCE/SEI 7 that is used in the International Building Code and required by FEMA's National Earthquake Hazards Reduction Program. Should not impact installations in the Commonwealth as the requirements are based on the IBC.

NFPA 13D – Installation of Sprinkler Systems for one and Two-Family Dwellings and Manufactured Housing

1. Major changes include new spacing and obstruction rules to enhance the performance of automatic sprinklers in single and two-family dwelling and manufactured housing. This change includes the use of new technology and should produce a cost savings for the client.
2. Changes have been made to address kitchen cabinets, ceiling fans, ceiling pockets and sloped ceilings. These changes bring NFPA 13D into correlation with NFPA 13 and new technology. These changes should produce a cost savings.
3. Installation, design and acceptance testing have been clarified. These requirements have been reduced from those previously cited in NFPA 20 and should produce a cost savings.
4. Insulation for protection of piping from freezing and the use of wells as a water supply have been clarified. These changes should produce cost savings.
5. Clarification has been added to the standard to address listed dry-pipe and pre-action sprinkler systems as well as the requirements for multi-purpose and networks sprinkler systems. All of these items should produce cost savings.
6. Specific obstruction rules for residential sprinklers have been added to the standard to address specific issues providing guidance to the authority having jurisdiction and designers. These clarifications will produce cost savings.

NFPA 13R – Installation of Sprinkler Systems for residential Buildings up to Four Stories in Height

1. The majority of changes in this document mirror those in NFPA 13D.
2. Clarification has been provided regarding the use of quick-response sprinklers, requirements for sprinkler protection in closets, mechanical closets and architectural features within the dwelling unit. This clarification provides for consistent application of these previously confusing standard sections.
3. New requirements were added to the standard from NFPA 13 to ensure proper administration of relevant requirements contained in NFPA 13. This change clarifies what parts of NFPA 13 are applicable to the use of NFPA 13R and provides clarity for design and enforcement. This change will provide consistent application of the standard and should result in an overall cost savings for the client.

NFPA 20 – Installation of Stationary Pumps for Fire Protection

1. Requirements for break tanks were added. This change was in response to EPA requirements under the Clean Water Act to preserve water.
2. Component replacement testing tables were added. This provides guidance for the maintenance and extended life of fire pumps. This change provides for scheduled replacement of critical operation components permitting the continued use of a fire pump as opposed to whole unit replacement. This will produce a significant cost savings to the clients.
3. Requirements for variable speed drives were refined. Less costly variable speed drives were added as a permissible driver for fire pumps in the 2003 edition. This change clarifies this application of new technology in the fire protection field by addressing issues and questions that came to the forefront after the inclusion of these less costly drivers.

NFPA 24 – Private Fire Protection Underground and Their Appurtenances

1. A total of five changes occurred in NFPA 24. Two of the changes are the addition of two new annexes. The annexes are not part of the standard but are recommended practices. One involves test of water supplies and the other pertains to the marking of fire hydrants.
2. The remaining changes are an editorial update of Chapter 10 and minor technical revisions.
3. The third change is an update of the requirements for thrust blocks and restraint devices and a newly established leakage test criteria. This test criteria is less restrictive than the previous standard requirements based on research and actual application in the field. This should produce a cost savings to the client.
4. All of these changes should result in cost savings.

NFPA 33 – Spray Applications using Flammable and Combustible Materials

1. Clarifies the definition of spray area. This revision to the definition identifies those parts of the process that are not considered as part of the spray area. This should help eliminate confusion regarding what is the actual spray area. This in turn should help reduce cost due to a more accurate assessment of the actual spray / hazard area.
2. The requirement for vision panel materials has been expanded to include newer materials thereby giving the owner a choice of materials at a competitive price.
3. Two changes in Chapter 6 extract language from the National Electrical Code – NFPA 70 for consistency.
4. Section 7.7 was changed to permit the use of fire-retardant combustible material (fire retardant treated wood products) in the construction of exhaust and supply ducts for powder coating operations. This change should help reduce costs.
5. Maximum quantities of flammable and combustible liquids have been changed to correlate with NFPA 30.
6. Protection requirements for exhaust ducts for spray painting operations have been clarified.
7. In Chapters 11, 12 and 15 changes were made to designate certain highly resistive material as grounded when they meet surface conductivity requirements. This will eliminate additional grounding connections. This should produce a cost savings.
8. A major change that will produce a cost impact is located in Chapter 13. More restrictive requirements have been placed on high temperature limit switches and interlocks for spray paint booths used for drying and curing operations. The cost impact will be to the manufacturer of the booths but will eventually be passed along to the consumer.
9. More definitive requirements have been added to Chapter 14 addressing drying, curing and fusion apparatus used in limited finishing workstations. This change narrows the requirements from full-fledged workstations and specifically addresses the limited finish workstation area. This will produce a cost savings to the client.

NFPA 30B – Manufacturing and Storage of Aerosols

1. There are a total of twenty changes to NFPA 30B. There are two changes that reference the manufacturing of Level II and III aerosols. These changes should have little affect on our client group. I have attached a list of the proposed changes to NFPA 30B for your reference.
2. Change 30B–6 Log #5 makes a change that effects the hose stream duration. It references the use of ESFR sprinklers and the permitted lower duration (one hour instead of two hours) of the hose stream requirement. This change will produce a cost saving in either a small storage tank or possible smaller water main.

3. Change 30B-9 Log #13 permits the use of other than ordinary temperature rated sprinklers. Allowing the use of high temperature rated sprinklers permits a lower sprinkler design density. This should provide a cost savings.
4. Change 30B-10 Log #6 permits the protection of Level I aerosols as a Class III commodity. This protection level is the same as ordinary combustible material. This reduces the level of required protection and should produce a cost savings.
5. Change 30B-12 Log# 7 permits the protection of encapsulated Level II and III aerosols the same as uncartoned level II and III aerosols. The previous editions of the standard did not permit encapsulated Level II and III aerosol storage. A large percent of aerosol are now shipped from the manufacturer in this arrangement. This change recognizes the need to adapt to industry standards. It will allow merchandisers to keep reserve stock in the encapsulated package until needed and provide a safer more stable storage arrangement as opposed to loose storage that is subject to damage and falling off over storage units possibly injuring a member of the public.
6. The remaining changes are editorial in nature or clarify the intent of various codes sections. None of these changes will impose additional costs to our client group.

NFPA 72 – National Fire Alarm Code

1. The major changes to NFPA 72 have resulted in the incorporation of new technology based on current research performed by the Fire Detection Institute. These changes address new technology from the standpoint of providing guidance in the use, installation and testing/maintenance of these devices. The changes to NFPA 72 do not mandate the use of the new technology but specifically permits its use. The ability to utilize new technology will in most cases present a cost savings to the client.
2. The major revisions address power supply requirements, addressing system impairments, review and approval of performance based detection and visible signaling designs, revision to the system survivability from attack by fire (specific to high-rise systems), introduction of rules permitting alternative approaches to audible signaling, maintenance and testing criteria for multiple and single station alarms and household fire alarm systems.
3. Clarification has been provided regarding the efficacy and placement of duct mounted smoke detectors. The former code requirements addressing these issues have been found to be overly restrictive. This should produce a cost savings to the client.
4. Specific work by FM Global has advanced the use of performance-based design by developing an acceptable method of testing of the RTI (Response Time Index) for heat detectors. This will enhance the application of the performance-based design. The use of performance-based design will save our clients money.
5. Research performed by the Fire Detection Institute has resulted in changes to the design and placement of smoke detectors on beamed ceilings and waffle ceilings. This change incorporated the new technology now being used in smoke detection.

6. The 2007 edition of NFPA 72 now provides better guidance for the placement of visual notification devices in big box stores. Recent research has now determined that it is not necessary to have visual notification appliances in each aisle of a big box store. The code now recommends performance-based analysis of the spacing and placement of visual notification devices to take advantage of indirect visual alerting. This new addition to the code will assist in reducing the number of required ceiling mounted visual notification appliances in big box stores producing a savings for the client.
7. A conflict between the National Electrical Code and NFPA 72 has been resolved in the 2007 edition of NFPA 72. The conflict concerned the use of single- and multiple stations smoke detectors and Arc Fault Circuit Interrupters.
8. Clarification was added to the code regarding protection of fire alarm control units. Presently all control units in building not manned 24 hours a days require a smoke detector to be installed above the control unit (fire alarm control panel and auxiliary power supply units). Additionally, an exception was added that deletes the requirement for the smoke detector in buildings protected throughout with an NFPA 13 sprinkler system. This will result in a cost savings to the client.
9. Clarification has been added to the annex regarding spacing and placement of smoke detectors in spaces having ceiling heights greater than 15 feet.
10. The required Record of Completion has been revised and made user friendly.
11. The 2007 National Fire Alarm Code now recognizes the use of video smoke and flame detection. This is an application of new technology that will reduce the cost of system installation.
12. The absence of performance-based design for the placement and spacing of smoke detectors on ceilings with joist, beams, purlins and bays has produced confusion and excessive requirements in the past. The addition of the use of performance-based design now reflects the real world application of smoke detection based on research. This will produce a cost savings to the client.
13. The 2007 edition of NFPA 72 now recognizes the use of combination, multi-criteria and multi-sensor detectors. These single unit devices are a new technology that will produce a savings to the client.
14. The definition of Protected Premises has been revised to simplify the three distinct types of Protected Premises. This redefining of the intent of Protected Premises now coincides more with the intent of the International Building Code and International Fire Code requirements for the function of a system based on the occupancy based requirements in the IBC and IFC. For example, a system used to supervise a sprinkler system is now clearly defined as not requiring additional features such as occupant notification. This will produce a significant cost savings for the client.
15. The current sound pressure level of 120 dBa has been reduced to 110 dBa to correlate with the ADA guidelines.
16. Clarification was added to the code to indicate that the minimum sound pressure levels apply to alert tones and evacuations tones only. They do not apply to voice messages. This will reduce power requirements in the system design and produce a cost savings for the client.

17. A new section was added to the code to address tactile notification appliances and compliance of these devices with ANSI/UL 1971 or equivalent.
18. A revision to the 2007 edition of NFPA 72 regarding the record requirements for site-specific software has been made to assure that an on-site copy of the software is stored in a non-volatile non-erasable, non-rewritable memory. This change will enable a system to be quickly restored should the computer memory of the system crash. This will assure the continued operation of a building.
19. The use of a voice message incorporated with a single- and multi-station smoke detector for household use has been added to the code. This is based on recent research and testing concerning the reaction of children to the standard smoke detector alert tone and that of a human voice. This change is essential for the protection of younger children and older adults.

The changes noted in the above 2007 edition of the different reference standards would enable the citizens of Virginia, the developers and those responsible for their safety, health and welfare to utilize new technology and research based code applications for fire protection. It also encourages the use of performance-based design rather than the older prescriptive methods that in some cases were a "best guess" at providing adequate levels of protection. These changes would in almost all of the cases produce a cost savings to the development/contracting community while providing a higher level of safety to our citizens in the built environment.

We urge you to consider our request for a code modification that will adopt the 2007 edition of these reference standards to place The Commonwealth of Virginia in the forefront of protection of people, property and business using new technology.

Supporting Document Two

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Top Ten Changes in the 2007 Edition of *NFPA 13*

By Chris Dubay, P.E.

Now that the 2007 edition of *NFPA 13* has been published, it is a good time to review some of the changes that directly affect the fire protection engineering community. This article will review ten specific changes; these changes by no means represent an all-encompassing list of changes but have been selected to highlight some of the major areas of change.

1. The definition of the term "compartment" was revised to limit the size of openings in walls and to permit certain openings to have no lintel. Permitting a single opening with no lintel was in response to the common use of full-height doors, and calculations were completed to ensure that the single opening with no lintel would not have a detrimental effect on the activation time of sprinklers within the room. These same changes were made to the definition of "small room" (Section 3.3.15) and the room design method (Section 11.2.3.3.5).

3.3.5 Compartment. A space completely enclosed by walls and a ceiling. The compartment enclosure is permitted to have openings in walls to an adjoining space if the openings have a minimum lintel depth of 8 in. (203 mm) from the ceiling and the openings do not exceed 8 ft (2.44 m) in width. A single opening of 36 in. (914 mm) or less in width without a lintel is permitted when there are no other openings to adjoining spaces. *NFPA 13-2007, Installation of Sprinkler Systems*, copyright © 2006 NFPA.

2. The definition of "ordinary hazard (Group 2)" occupancies was modified to address proper classification of stockpiles of contents having moderate or high rates of heat release. These changes were made partially in response to a Fire Protection Research Foundation Report¹ addressing protection of shelf storage arrangements. Additionally, annex material was added to A.5.3 for the purposes of defining ordinary hazard (Group 1) and (Group 2) as follows: "Class I, Class II, Class III and Class IV would be considered to have moderate rates of heat release, while Group A plastics would be considered to have high rates of heat release."

5.3.2* Ordinary Hazard (Group 2). Ordinary hazard (Group 2) occupancies shall be defined as occupancies or portions of other occupancies where the quantity and combustibility of contents are moderate to high, where stockpiles of contents with moderate rates of heat release do not exceed 12 ft (3.66 m) and stockpiles of contents with high rates of heat release do not exceed 8 ft (2.4 m). Dedicated and Miscellaneous storage shall be protected in accordance with Chapters 12 and 13 as applicable. *NFPA 13-2007, Installation of Sprinkler Systems*, copyright © 2006 NFPA.

3. The allowable methods for determining water delivery time for dry pipe sprinkler systems were modified to permit use of an inspector's test connection, a test manifold or water delivery calculations utilizing a listed program. This change eliminated the small system exemptions for 500-gallon (1.9 m³) and 750-gallon (2.8 m³) systems with quick-opening devices where protecting dwelling units.
4. Annex material was added to address concerns that sprinklers were omitted from certain high bay areas and therefore did not meet the requirements of *NFPA 13*. The following text was added to Section A.8.1.1: "Based upon experience and testing, sprinklers have been found to be effective and necessary at heights in excess of 50 ft (15 m). For a building to meet the intended level of protection afforded by *NFPA 13*, sprinklers must not be omitted from such high ceiling spaces."
5. The situation of multiple small attached buildings was addressed to determine when and where a completely separate fire sprinkler system is required. Where the buildings are not

attached, *NFPA 13* still requires a separate fire sprinkler system. However, the following text was added to address multiple buildings that are attached by canopies, covered breezeways, common roofs or a common wall(s):

8.2.4 Multiple buildings attached by canopies, covered breezeways, common roofs or a common wall(s) shall be permitted to be supplied by a single fire sprinkler riser. The maximum system size shall comply with section 8.2.1. *NFPA 13-2007, Installation of Sprinkler Systems, copyright © 2006 NFPA.*

6. After several editions containing differing requirements between *NFPA 101* and *NFPA 13*, the requirements for closely spaced sprinklers and draft stops for protection of vertical openings were modified to require draft stops and sprinklers only where they are provided as an alternative to enclosure of the vertical opening.

8.15.4.1 General. Unless the requirements of 8.15.4.4 are met, where moving stairways, staircases or similar openings are unenclosed and where sprinkler protection is serving as the alternative to enclosure of the vertical opening, the floor openings involved shall be protected by closely spaced sprinklers in combination with draft stops in accordance with 8.15.4.2 and 8.15.4.3. *NFPA 13-2007, Installation of Sprinkler Systems, copyright © 2006 NFPA.*

7. The paragraph that permitted omitting sprinklers from bathrooms where a thermal barrier was used (Section 8.15.8.1.1) was modified to only require the thermal barrier for the walls and ceilings behind any shower enclosure or tub. Previously, the thermal barrier was also required in walls and ceilings behind all fixtures. While not a specific code change, one major issue that was raised during the committee discussions was that common design take-outs for shower and tub units do not account for the thermal barrier, and once on-site, the thermal barrier will often be removed in order for the shower or tub to properly fit between the studs. Where this occurs, sprinklers would then be required within the bathroom regardless of its size.
8. *NFPA 13* no longer requires small-hose connections for storage occupancies. The text of Section 12.2.1 was modified to indicate that small-hose connections are only required where specifically required by the Authority Having Jurisdiction. Additionally, the specific statements that small-hose connections shall not be required for the protection of Class I, II, III and IV commodities stored 12 feet (3.7m) or less in height (Section 12.2.2) and for the protection of miscellaneous storage (Section 13.1.1) remain for the 2007 edition.
9. For storage applications that have ceiling heights exceeding 30 ft (9 m), modifications were made to address the proper design criteria for the sprinkler system protecting that space where the distance between the ceiling and the top of storage exceeds 20 ft (6.1 m). Additionally, a new annex section B.3 was added to provide not only additional information, but to provide an extensive reference list on this subject.

12.1.3.4.1 For ceiling heights that exceed 30 ft (9 m), where the distance between the ceiling height and top of storage exceeds 20 ft (6.1 m), protection shall be provided for the storage height that would result in a 20-ft (6.1-m) distance between the ceiling height and top of storage. *NFPA 13-2007, Installation of Sprinkler Systems, copyright © 2006 NFPA.*

10. Several changes were made to systems that utilize antifreeze solutions. One major area addressed was the underprediction of friction loss for antifreeze solutions at low temperatures by the Hazen-Williams formula. Where antifreeze systems having a volume greater than 40 gallons (0.15 m³) are utilized, *NFPA 13* now requires a second set of friction loss calculations utilizing the Darcy-Weisbach formula to account for the solution's actual viscosity. Additionally, changes were made to ensure that the minimum required concentration of antifreeze was utilized based upon the anticipated minimum temperature (Section 7.6.3.1) to avoid excessively high concentrations of antifreeze solutions, which are combustible.

22.4.2.1.3 For antifreeze solutions greater than 40 gallons in size, the friction loss shall also be calculated using the Darcy-Weisbach formula. *NFPA 13-2007, Installation of Sprinkler Systems, copyright © 2006 NFPA.*

Chris Dubay is with the National Fire Protection Association.

¹"Evaluation of Sprinkler Performance in Protecting Gondola-Type Shelf Storage," Fire Protection Research Foundation, Quincy, MA, 2006.

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Seismic Changes in NFPA 13

By Russ Fleming, P.E.

One of the most significant areas of change within the 2007 edition of *NFPA 13*¹ is related to requirements for earthquake protection. *NFPA 13* has included provisions for the protection of sprinkler systems against earthquakes since 1947, a time at which many building codes didn't even address the subject. But major changes in building code requirements for earthquake protection have come in the past 20 years with funding from the Federal Emergency Management Agency, leading to the development of the National Earthquake Hazards Reduction Program² (NEHRP) provisions. The NEHRP provisions initially found their way into the codes through direct adoption, and now through reference to the American Society of Civil Engineer's standard *ASCE/SEI 7*.³ The 2007 edition of *NFPA 13* includes major changes intended to correlate with the NEHRP/ASCE/SEI provisions.

The NFPA Committee on Hanging and Bracing of Water-Based Fire Protection Systems has been trying to keep pace with a moving target as successive editions of *ASCE/SEI 7* address protection of architectural and mechanical systems. There is a difficult transition period taking place right now involving the seismic provisions of *NFPA 13* and the 2003 edition of the *International Building Code*⁴® (*IBC*). Because of the reference to *ASCE/SEI 7*, the 2003 *IBC* does not contain the detailed seismic requirements that had been included in the 2000 edition of the *IBC*. Although general reference to the 1999 edition of *NFPA 13* is contained in the 2003 *IBC*, a section of *ASCE/SEI 7* that made special reference to the use of *NFPA 13* for earthquake protection was omitted during the adoption process, leading some to believe that sprinkler piping must be protected the same as other mechanical piping. However, sprinkler system piping is not arranged like other mechanical piping systems, and some of the requirements of *NFPA 13* have been specifically developed to prevent system damage during earthquake movement.

Several structural engineers who helped write the NEHRP provisions have been participating in the *NFPA 13* amendment process, trying to eliminate areas of conflict. Among the areas of concern were the fastener requirements for bracing, specifically anchorage allowances that were outdated. These were addressed with a TIA (emergency amendment) to the 2002 edition of *NFPA 13* that became effective August 6, 2003. That TIA can be viewed at the nfpa.org Web site and is officially part of the 2002 edition of the sprinkler standard, but was not issued on the 1999 edition referenced by the 2003 *IBC*.

The 2003 TIA to *NFPA 13* reduced the allowable fastener loads to match current industry standards, limited the maximum spacing of lateral braces to 40 ft (12.2 m) on center and provided clarification of how *NFPA 13* could be used in conjunction with the seismic design force formula contained in *ASCE/SEI 7* for use with nonstructural components:

$$F_p = 0.4 a_p S_{DS} W_p (1+2(z/h)) / (R_p / I_p)$$

The design acceleration, S_{DS} , for any part of the United States is found in widely available maps developed by the U.S. Geological Survey (USGS), and some of the other factors are directly assigned for fire sprinkler systems in *ASCE/SEI 7*. While the importance factor, I_p , has always

been 1.5 for sprinkler systems, assigned values for some of the other factors changed between the 2002 and 2005 editions of *ASCE/SEI 7*. The TIA issued on the 2002 edition of *NFPA 13* suggested the use of component response modification factor, R_p , of 3.5, correlating with the 2002 edition of *ASCE/SEI 7*, which also specified a component amplification factor a_p of 1.0. In the 2005 edition of *ASCE/SEI 7*, the R_p for a steel piping system (with joints made by something other than welding or brazing) is 4.5, and the a_p is 2.5 (regardless of how joints are made).

While the 2002 edition of *ASCE/SEI 7* was referenced for use by the 2003 editions of the *IBC* and *NFPA 5000*⁵ building codes, the 2005 edition of *ASCE/SEI 7* is referenced by the 2006 editions of those codes. As such, compliance with the 2003 or earlier editions of these codes would produce an a_p/R_p ratio of $1.0/3.5 = 0.29$, whereas compliance with the 2006 editions of these codes produces a ratio of $2.5/4.5 = 0.55$, resulting in significantly higher forces. To some extent this has been offset by the clarification that the calculated design force can be reduced by a factor of 1.4 due to the fact that *ASCE/SEI 7* is based on strength design, whereas *NFPA 13* uses allowable stress design. Prior to the 2007 edition, all loads in *NFPA 13* were at allowable stress levels with the exception of the buckling loads for brace members. In the 2007 edition, tables that contained the allowable loads on braces have been reduced to add a factor of safety appropriate to the use of allowable stress design.

A simplified approach to determining seismic forces on sprinkler systems has also been developed for the 2007 edition of *NFPA 13*, involving a number of conservative assumptions. For example, the approach assumes poor soil conditions, leading to higher earthquake forces on the piping. The user of the standard always has the option to determine lateral forces in accordance with the actual equation of *ASCE/SEI 7*, but the simplified approach allows the determination of loads without the use of the equation. Table 9.3.5.6.2 contains a series of "seismic coefficients", factors that are simply applied to the design acceleration, S_{DS} , taken from the USGS maps to arrive at the earthquake design-force levels.

Because of the changes in *ASCE/SEI 7*, AHJs and others should be aware that the appropriate criteria for use in conjunction with the 2000 and 2003 editions of the model building codes are those found in the 2002 edition of *NFPA 13*, including the TIA. The appropriate criteria to be used with the 2006 editions of the model building codes are found in the 2007 edition of *NFPA 13*. Designers and AHJs do need to be aware that the building code references a specific edition of the standard. Generally, this does not preclude designers from using newer editions, especially if such revisions work better technically, as long as the use of newer editions is specifically documented and justified.

The new changes to the 2007 edition of *NFPA 13* bring the standard fully in line with the latest thinking of the earthquake experts. In fact, the 2007 edition of *NFPA 13* was unanimously approved as "deemed to comply" with the seismic requirements of *ASCE/SEI 7* without exception at the IBC Structural Committee Hearings in Orlando in September of 2006.

The 2007 edition of *NFPA 13* also contains a number of individual changes of significance relative to the installation of seismic bracing and restraint, including the following:

- Where seismic separation assemblies are provided, four-way bracing must be provided on piping within 6 ft (1.8 m) of both sides of the separation.
- To limit piping deflections, a new table limits maximum load per lateral brace based on spacing from 20 ft to 40 ft (6.1 m to 12.2 m) along with size and type of pipe; the allowance for maximum lateral brace spacing over 40 ft (12.2 m) has been eliminated.
- The distance between the last lateral brace and the end of a pipe being braced must not exceed 6 ft (1.8 m).
- Except where branch lines are supported by rods less than 6 in. (150 mm) in length, restraint of all branch lines is required, with maximum distance between restraints ranging from 27 ft to 55 ft (8.2 m to 16.7 m) depending on the size of the branch line and the force level. Branch lines 2-1/2 in. (65 mm) and larger continue to require lateral bracing.
- Additional hangers used at an angle of not less than 45 degrees from vertical fulfill the requirements for branch line restraint, provided the hanger rod slenderness ratio does not exceed a value of 300.

One of the issues not addressed within *NFPA 13* that is an important design consideration relates to clearance around sprinklers penetrating ceilings. The 2005 *ASCE/SEI 7* as adopted by the 2006 building codes requires a 1-in. clearance around sprinkler penetrations of ceiling membranes in high-risk seismic areas. Some sprinkler manufacturers have developed larger escutcheon plates to cover these holes; flexible drops can be used as an alternative.

The special earthquake protection criteria of *NFPA 13* have been developed over decades, making use of both laboratory findings and real earthquake experience. The new changes bring *NFPA 13* into conformance with the latest standards in the field of earthquake engineering. Attempts to bypass the *NFPA 13* approach and treat sprinkler system piping like other mechanical systems is not advised, since it will produce the worst of both worlds: more cost with less actual protection against earthquakes.

Russ Fleming is with the National Fire Sprinkler Association.

¹*NFPA 13*, Installation of Sprinkler Systems, National Fire Protection Association, Quincy, MA, 2007.

²*FEMA 450*, "NEHRP-Recommended Provisions for Seismic Regulations for New Buildings and Other Structures", National Institute of Building Sciences, Washington, DC, 2003.

³*ASCE/SEI 7*, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers, Reston, VA, 2005.

⁴*International Building Code*, International Code Council, Washington, DC, 2003.

⁵*NFPA 5000®*, Building Construction and Safety Code, National Fire Protection Association, Quincy, MA, 2003.

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Warehouse Sprinkler Design Configurations Not Covered by *NFPA 13*

Chapter 12 of *NFPA 13*, Installation of Sprinkler Systems, contains extensive information regarding the design of automatic sprinkler systems for storage occupancies.

Overview of Changes in NFPA Standards

NFPA 13D – 2007 Edition

The 2007 edition includes new spacing and obstruction rules addressing sloped ceilings, ceiling pockets, ceiling fans, and kitchen cabinets. Also new to this edition are installation, design, and acceptance requirements for pumps. The acceptability of insulation as a method of freeze protection and the acceptability of wells as a water source have been clarified for this edition. New requirements for listed dry pipe/preaction residential sprinkler systems, as well as clarified requirements for multi-purpose combined and networked sprinkler systems, have been incorporated. Finally, specific obstruction rules have been added for residential sprinklers.

NFPA 13R – 2007 Edition

The 2007 edition includes new spacing and obstruction rules addressing sloped ceilings, ceiling pockets, ceiling fans, and kitchen cabinets. For this edition, the requirements for utilizing quick-response sprinklers within NFPA 13R regulations were clarified, and new requirements addressing architectural features within dwelling units were added. Additionally, the requirements covering closets, including obstructions within closets and protection of mechanical closets, were clarified. Finally, new requirements were added that are applicable from NFPA 13 to NFPA 13R, to ensure proper administration of those requirements where relevant.

NFPA 20 – 2007 Edition

For the 2007 edition, requirements for variable speed drives were refined, requirements for break tanks were added, and component replacement testing tables were included.

NFPA 24 – 2007 Edition

The revisions for NFPA 24 occurred in five primary subject areas: Chapter 10 has been editorially updated and contains minor technical changes. Additionally, Chapter 10 now contains newly established leakage test criteria, as well as updated requirements for thrust blocks and restrained joints. Two annexes are new to this edition: Annex C, Recommended Practice for Fire Flow Testing, and Annex D, Recommended Practice for Marking of Hydrants. These two annexes were developed based on the current edition of NFPA 291.

**Report of the Committee on
Aerosol Products**

Michael J. Madden, Chair

Gage-Babcock & Associates, Incorporated, CA [SE]

Gerald J. Basta, Global Risk Consultants Corporation, IL [SE]

William A. Frauenheim, III, Diversified CPC International, Incorporated, IL [M]

Rep. Consumer Specialty Products Association

David L. Fredrickson, S. C. Johnson & Son Incorporated, WI [M]

Rep. Consumer Specialty Products Association

Robert O. George, 3M Company, MN [U]

David Grandaw, Fenwal Protection Systems, Incorporated/Kidde PLC, IL [M]

James Koskan, SUPERVALU, Incorporated, MN [U]

Thomas J. Kramer, Schirmer Engineering Corporation, IL [I]

John A. LeBlanc, FM Global, MA [I]

Michael J. Nappi, Potomac Electric Power Company, DC [U]

Martin J. Pabich, Underwriters Laboratories Incorporated, IL [RT]

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Rodney P. Smith, Packaging Technologies, IA [M]

David C. Tabar, The Sherwin-Williams Company, OH [M]

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Tim N. Testerman, Procter & Gamble Company, OH [M]

(Alt. to David L. Fredrickson)

Martin H. Workman, The Viking Group, Incorporated, MI [M]

(Alt. to Donald B. Pounder)

Staff Liaison: **Gregory E. Harrington**

Committee Scope: This Committee shall have primary responsibility for documents on safeguarding against the fire and explosion hazards associated with the manufacturing, handling, and storage of aerosol products.

This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the front of this book.

The Report of the Technical Committee on **Aerosol Products** is presented for adoption.

This Report was prepared by the **Technical Committee on Aerosol Products**, and proposes for adoption, amendments to NFPA 30B, **Code for the Manufacture and Storage of Aerosol Products**, 2002 edition. NFPA 30B-2002 is published in Volume 2 of the 2004/2005 National Fire Codes and in separate pamphlet form.

This Report has been submitted to letter ballot of the **Technical Committee on Aerosol Products** which consists of 21 voting members. The results of the balloting, after circulation of any negative votes, can be found in the report.

30B-1 Log #1
(Entire Document)

Final Action: **Reject**

Rejected No change

SUBMITTER: Denyse Dubrucq, AirWars Defense
RECOMMENDATION: Add new text as follows:

Liquid Nitrogen applied appropriately generates inert gas, Nitrogen, displacing air containing Oxygen, and cooling air, liquids and solids, which stops fires, prevents additional explosions, and gels or solidifies the products and dispersing materials.

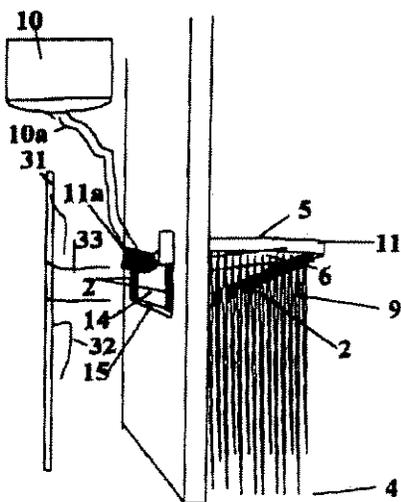
Nitrogen fire fighting leaves no trace, not disturbing papers, records, product or packaging beyond what has been consumed and disfigured by the fire prior to application.

Plumbing a building for LN fire control speeds application in case of fire, flammable spill, or gas leak. It can end hostage crises by causing people to quickly pass out. Rescuers handcuff criminals and resuscitate all people and animals.

LN is recommended for storage of flammables, silos, manufacturing or servicing with fire hazards, and buildings where destruction of equipment, papers, product and packaging is unacceptable. Primary water states as Colorado, Utah, Nevada, New Mexico, Arizona, and California preserve water if they substitute Liquid Nitrogen for water in fire fighting.

Plumbing designs include a nozzle that supply tank or tank truck latches into feeding LN into an interior trough or semi-circular pan with holes dispersing Liquid Nitrogen in evenly spaced droplet streams. The droplets evaporate releasing below the sleeve location cryogenically cold, inert Nitrogen gas, which is drawn into the fire and floods the inner space.

SUBSTANTIATION:



Here is a drawing of a unit system where 10 indicates a reservoir, 10a the transfer tubing, 11 the dispenser, and 14 the means to affix the dispenser to the window inset or wall. When the Liquid Nitrogen is dispersed it is liquid 2 and as it evaporates it is gaseous 4.

In the case of a Liquid Nitrogen (LN) fixed fire control system, the reservoir can hold one or more living units with Nitrogen. Fire department LN supplies can add to the volume for multiple unit fires.

Liquid Nitrogen systems should be included with Water systems for the following reasons:

1. Both Nitrogen and water are major ingredients in the natural earth's atmosphere.
2. Both Liquid Nitrogen and liquid water are brought to the fire scene.
3. Both are fire retardants in their gaseous form.
4. Both provide cooling of the vicinity of the fire through evaporation.
5. Both in great volume do not pollute the atmosphere.
6. Both in great volume do not pollute the watershed.

In contrast, the foams, halon, and even vinegar and baking soda bring ingredients uncommon in our ecosystem into the act of fire control.

COMMITTEE MEETING ACTION: **Reject**

COMMITTEE STATEMENT: No specific code language has been proposed. Insufficient supporting documentation has been submitted to support the use of such systems (e.g. listings by recognized testing laboratories). It also appears the proposed systems would be dangerous to any personnel where used in occupied spaces.

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-2 Log #2

(Entire Document)

Final Action: **Reject**

Rejected No change

SUBMITTER: Denyse Dubrucq, AirWars Defense
RECOMMENDATION: Add new text as follows:

Provides minimum requirements for the prevention of fires and explosions in facilities that manufacture, store, or display aerosol products using Liquid Nitrogen rain fixed systems.

SUBSTANTIATION: Liquid Nitrogen automatic sprinkler systems require one Liquid Nitrogen dispensing unit per continuous air volume, rather than many water sprinkler heads to insure the whole area would be dampened. The liquid nitrogen is rained down in droplets evaporating, flooding the space with cold Nitrogen gas. This cools the air and displaces most of the Oxygen causing flammables to gel or solidify and preventing continuation of a fire or instances of explosions.

Liquid nitrogen excels in a grease, oil or wax fire where water causes these organics to spatter spreading the burn. Nitrogen robs the fire of Oxygen and cools and solidifies or gels the grease, oil and wax. Where water damages the contents and decor, Nitrogen does not disturb the contents, colors and cools the air reducing heat warping of plastics.

Dispenser units are installed in one wall at a height above floor allowing droplets to evaporate as they fall flooding space with cold Nitrogen gas. Fire recovery is less costly. Losses are limited to what burned in the fire before Liquid Nitrogen application. Structural damage is reduced by its cooling the structure.

The reservoir should contain enough Nitrogen to fill a protected living unit when evaporated. The fire department adds to Liquid Nitrogen supply in multi-unit fires.

COMMITTEE MEETING ACTION: **Reject**

COMMITTEE STATEMENT: This proposal is related to Proposal 30B-1 (Log #1), which was rejected. See the committee statement for the rejection of Proposal 30B-1 (Log #1).

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-3 Log #CP3

(1.1.2, 5.1, A.1.1.2, A.5.1)

Final Action: **Accept**

Change N/A/1/0/c

SUBMITTER: Technical Committee on Aerosol Products

RECOMMENDATION: Delete 1.1.2 in its entirety and revise Section 5.1 as follows:

5.1 Scope. This chapter shall apply to the manufacture of aerosol products containing flammable or combustible base product or a flammable propellant.

Relocate Annex A.1.1.2 as revised to the end of the existing A.5.1 as a new paragraph:

~~A.1.1.2~~ A.5.1 ...An example of an aerosol product that is not flammable or combustible, and, therefore, not covered by this code chapter is whipped cream: the base product is a water-based material and the propellant is nitrous oxide, which is nonflammable.

SUBSTANTIATION: The proposal clarifies that aerosol products containing either combustible or flammable base products need to comply with Chapter 5, Manufacturing Facilities. Paragraph 1.1.2 is deleted because the Code does regulate storage and display of Level 1 aerosols.

COMMITTEE MEETING ACTION: **Accept**

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-4 Log #CP4

(1.1.5 (New), A.1.1.5 (New))

Final Action: **Accept**

Change

SUBMITTER: Technical Committee on Aerosol Products

RECOMMENDATION: Add a new 1.1.5 and A.1.1.5 as follows:

1.1.5* This code shall not apply to containers that do not meet the definition of "Aerosol Container" (see 3.3.2).

A.1.1.5 This code does not apply to products that may be dispensed as aerosolized sprays that are not packaged in aerosol containers as defined in 3.3.2. This code is not applicable to other applications such as industrial spray adhesives that are dispensed from large (5 - 125 gallon) pressurized gas cylinders.

SUBSTANTIATION: The proposal clarifies the scope of the code as indicated in the proposed annex note.

COMMITTEE MEETING ACTION: **Accept**

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-5 Log #3
(3.3.23 Protected Enclosure) **Final Action: Reject**

No change

SUBMITTER: Carmella Richards, SC Johnson & Son, Inc.
RECOMMENDATION: Add a new definition (3.3.23?):

Protected Enclosure. An enclosure that fully encloses flammable propellant charging equipment. The enclosure must have fully enclosed walls made of a solid material with minimal openings for container entry and exit, doorway gaps and make-up air intakes. The enclosure contains a deflagration suppression system, gas monitors and local exhaust ventilation meeting the requirements of Chapter 5. In addition, the room surround this enclosure has no flexible flammable propellant fittings or hoses.

SUBSTANTIATION: The changes would reflect the requirements for gashouses with fully enclosed and protected flammable propellant filling equipment.

COMMITTEE MEETING ACTION: Reject

COMMITTEE STATEMENT: This proposal is related to Proposal 30B-8 (Log #4), which was rejected. See the committee statement for the rejection of Proposal 30B-8 (Log #4).

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-6 Log #CP5
(4.6.4.1.1) **Final Action: Accept**

N/A/10/c

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 4.6.4.1.1 as follows:

4.6.4.1.1 The water supply shall be sufficient to provide the required hose stream demand for a minimum duration of 2 hours unless otherwise specified in 6.3.2.

SUBSTANTIATION: Facilities protected with ESFR sprinkler systems require only a 1-hour hose stream demand.

COMMITTEE MEETING ACTION: Accept

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-7 Log #CP15
(5.3.4.1) **Final Action: Accept**

N/A/10/c

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 5.3.4.1 as follows:

5.3.4.1* New flammable propellant charging rooms, flammable propellant pump rooms, and rooms in which Class IA liquids or unstable liquids are handled shall be designed to direct flame, combustion gases, and pressures resulting from deflagration away from important buildings or occupied areas through the use of damage-limiting construction. The damage-limiting construction shall be in accordance with recognized standards and shall be subject to approval of the authority having jurisdiction.

SUBSTANTIATION: Editorial revision for consistency with other sections of the code.

COMMITTEE MEETING ACTION: Accept

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-8 Log #4
(5.4.1.1, 5.4.2, 5.7.1, 5.7.2, 5.11.1, Table 5.12) **Final Action: Reject**

No change

SUBMITTER: Carmella Richards, SC Johnson & Son, Inc.
RECOMMENDATION: Revise text to read as follows:

5.4.1.1 Ventilation systems shall include exhaust systems and make-up air systems. However, make-up air systems for protected enclosures may be supplied to the enclosure via the negative pressure exerted by the exhaust. This airflow shall adequately capture the vapors and prevent them from leaving the enclosure.

5.4.2 - remove the work "exhaust" because what follows applies to make-up air and exhaust and therefore 5.4.2 should be called: Mechanical ventilation for the...

(1) The protected enclosure and/or room shall be maintained at a negative pressure in relation to the ambient air.

Under (D): Exception: Where provided at all propellant fillers and subject to the approval of the authority having jurisdiction, local exhaust ventilation shall be permitted to replace up to 75 percent of the volumetric flow rate of the ventilation required by 5.4.2. For the room surrounding a protected enclosure meeting the requirements of (1), the mechanical exhaust shall provide exhaust at a flow rate of 4 CFM/square foot of floor area. In all other cases, the ventilation rate shall be more than or equal to one air change per minute.

(E) emergency ventilations shall be activated automatically at not more than 20 percent of the LEL. It shall be designed to provide 150 percent of the air flow rate determined in 5.4.2 (D) or two air changes per minute, whichever is greater.

Exception: The two air changes per minute does not apply to protected enclosures or their surrounding rooms.

5.7.1 Protected enclosures, flammable propellant charging and pump rooms shall be provided with an approved gas detection system that is equipped with audible or visible alarms.

5.7.2 The gas detection system shall be interlocked in accordance with Section 5.12, as applicable.

5.11.1 A deflagration suppression system meeting the requirements of NFPA 69, Standard on Explosion Prevention Systems, shall be installed in flammable propellant charging rooms or protected enclosures and flammable propellant pump rooms.

Table 5.12 Equipment interlocks - add two rows:

Protected Enclosure Rood Gas Detection - 10% LEL

-(same actions as gas detection at 20%)

Protected Enclosure Room Gas Detection - 20% LEL

-(same actions as gas detection at 40%)

SUBSTANTIATION: The changes would reflect the requirements for gashouses with fully enclosed and protected flammable propellant filling equipment.

COMMITTEE MEETING ACTION: Reject

COMMITTEE STATEMENT: The committee recognizes the potential value of the proposed concept; however, the proposal, as submitted, is not fully developed. The submitter is encouraged to continue working on the proposal and submit a public comment or comments to address the following:

1. Proposed code language should meet the NFPA Manual of Style, which can be downloaded from the NFPA website: <http://www.nfpa.org/assets/files/PDF/MOS1-3.pdf>
2. Ventilation system criteria.
3. Fire suppression system criteria.
4. Construction requirements.
5. Automatic fire detection system requirements.
6. Deflagration venting and suppression system requirements.
7. Equipment interlocks.
8. Potential propellant leak sources.
9. Propellant piping requirements.

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-9 Log #CP13
(5.8.1.2) **Final Action: Accept**

N/A/10/c

SUBMITTER: Technical Committee on Aerosol Products

RECOMMENDATION: Delete 5.8.1.2 in its entirety as follows:

5.8.1.2 Wet-pipe sprinkler systems shall use ordinary temperature-rated sprinklers.

SUBSTANTIATION: Related codes and standards do not impose sprinkler temperature restrictions on manufacturing operations. There is no technical basis for the restriction. If NFPA 13 permits the use of such sprinklers, there is no reason why NFPA 30B should impose additional restrictions.

COMMITTEE MEETING ACTION: Accept

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-10 Log #CP6
(6.2.2) **Final Action: Accept**

N/A/10/c

SUBMITTER: Technical Committee on Aerosol Products

RECOMMENDATION: Revise 6.2.2 as follows:

6.2.2 In cases where the storage of Level 1 aerosol products is required to be protected, such storage shall be protected in accordance with the requirements for Class III commodities set forth in NFPA 13.

SUBSTANTIATION: The proposal clarifies the committee's intent.

COMMITTEE MEETING ACTION: Accept

NUMBER ELIGIBLE TO VOTE: 21

BALLOT RESULTS: Affirmative: 18

BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-11 Log #CP8
(6.3.2.1.1) **Final Action: Accept**

N/A/10/c

SUBMITTER: Technical Committee on Aerosol Products

RECOMMENDATION: Revise 6.3.2.1.1 as follows:

6.3.2.1.1 Storage of Level 2 and Level 3 aerosol products shall be permitted as provided for in 6.3.3.

SUBSTANTIATION: Editorial correction.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-12 Log #CP7
 (6.3.2.2, A.6.3.2.2 (New)) *N/A/I/O/C* **Final Action: Accept**

30B-16 Log #CP9
 (6.3.2.13) *N/A/I/O/C* **Final Action: Accept**

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 6.3.2.2 and add a new A.6.3.2.2 as follows:
 6.3.2.2* Encapsulated storage of cartoned Level 2 and Level 3 aerosol products shall not be permitted protected as uncartoned.
A.6.3.2.2 Fire testing has not been performed on encapsulated pallets of cartoned aerosol products; however, this type of protection should be appropriate for this condition based on testing of uncartoned aerosol products.
SUBSTANTIATION: While encapsulated, cartoned storage has not been tested with aerosols, it is a form of storage similar to uncartoned in terms of lack of water retention.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 6.3.2.13 as follows:
 6.3.2.13 Where spray sprinklers are utilized for ceiling protection, sprinkler spacing shall not exceed 9.3 m² (100 ft²) unless otherwise permitted by 6.3.2.14.
SUBSTANTIATION: 6.3.2.14 does allow extended coverage sprinklers, so their spacing should be allowed when densities and response times meet with 30B storage tables.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-13 Log #CP21
 (Figure 6.3.2.7(b), Figure 6.3.2.7(c)) *Correction to Drawing* **Final Action: Accept**

30B-17 Log #CP19
 (6.3.2.17 (New), 6.3.2.18 (New), 6.3.2.19 (New), 6.3.5.5, 6.3.5.6, 6.3.5.6.1, 6.3.6.8, 6.3.6.8.1, 6.3.6.9, 6.3.6.9.1, 6.3.8.4, 6.3.8.4.1, 6.3.8.5, and 6.3.8.5.1) *N/A/I/O/C* **Final Action: Accept**

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise Figure 6.3.2.7(b) as follows:
 In "(3) Multiple Row Racks - Elevation View" add face sprinklers at each flue sprinkler location as is shown in "(2) Double Row Racks - Elevation View."
 Revise Figure 6.3.2.7(c) as follows:
 In "(2) Double Row Racks - Plan View" add three face sprinklers as is shown in Figure 6.3.2.7(b), "(2) Double Row Racks - Plan View."
 In "(3) Multiple Row Racks - Elevation View" add face sprinklers at each flue sprinkler location as is shown in "(2) Double Row Racks - Elevation View."
SUBSTANTIATION: The noted parts of the figures were drawn incorrectly in the 2002 edition of the code. The proposal corrects the three errors.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Add a new 6.3.2.17 through 6.3.2.19 and delete 6.3.5.5, 6.3.5.6, 6.3.5.6.1, 6.3.6.8, 6.3.6.8.1, 6.3.6.9, 6.3.6.9.1, 6.3.8.4, 6.3.8.4.1, 6.3.8.5, and 6.3.8.5.1 as follows:
 6.3.2.17 Rack storage shall be arranged so that a minimum aisle width of 2.4 m (8 ft) is maintained between rows of racks and between racks and adjacent solid pile or palletized storage.
 6.3.2.18 Where protection is provided by ESFR sprinklers, aisle width shall be not less than 1.2 m (4 ft).
 6.3.2.19 Solid pile and palletized storage shall be arranged so that no storage is more than 7.6 m (25 ft) from an aisle. Aisles shall be not less than 1.2 m (4 ft) wide.
 6.3.5.5 Solid pile and palletized storage shall be arranged so that no storage is more than 7.6 m (25 ft) from an aisle. Aisles shall be at least 1.2 m (4 ft) wide.
 6.3.5.6 Rack storage shall be arranged so that a minimum aisle width of 2.4 m (8 ft) is maintained between rows of racks and between racks and adjacent solid pile or palletized storage of Level 2 and Level 3 aerosol products, except where protection and storage arrangements are in accordance with the applicable table per Table 6.3.2.7(c) through Table 6.3.2.7(f):
 6.3.5.6.1 The minimum aisle width shall be 1.2 m (4 ft).
 6.3.6.8 Solid pile and palletized storage shall be arranged so that no storage is more than 7.6 m (25 ft) from an aisle.
 6.3.6.8.1 Aisles shall be at least 1.2 m (4 ft) wide.
 6.3.6.9 Rack storage shall be arranged so that a minimum aisle width of 2.4 m (8 ft) is maintained between rows of racks and between racks and adjacent solid pile or palletized storage of aerosol products, except where protection and storage arrangements are in accordance with the applicable table per Table 6.3.2.7(c) through Table 6.3.2.7(f):
 6.3.6.9.1 The minimum aisle width shall be 1.2 m (4 ft).
 6.3.8.4 Solid pile and palletized storage shall be arranged so that no storage is more than 7.6 m (25 ft) from an aisle.
 6.3.8.4.1 Aisles shall be at least 1.2 m (4 ft) wide.
 6.3.8.5 Rack storage shall be arranged so that a minimum aisle width of 2.4 m (8 ft) is maintained between rows of racks and between racks and adjacent solid pile or palletized storage of aerosol products:
 6.3.8.5.1 Where protection is provided by ESFR sprinklers, aisle width shall not be less than 1.2 m (4 ft).
SUBSTANTIATION: The proposal consolidates the aisle width requirements from 6.3.5.5, 6.3.5.6, 6.3.5.6.1, 6.3.6.8, 6.3.6.8.1, 6.3.6.9, 6.3.6.9.1, 6.3.8.4, 6.3.8.4.1, 6.3.8.5, and 6.3.8.5.1 for user-friendliness. The proposal is not intended to be a technical change.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-14 Log #CP12
 (6.3.2.9) *N/A/I/O/C* **Final Action: Accept**

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 6.3.2.9 as follows:
 6.3.2.9 Installation of in-rack sprinklers shall be in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, as modified by Table 6.3.2.7(e) through Table 6.3.2.7(f) 6.3.2.7(l).
SUBSTANTIATION: Editorial correction.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-15 Log #CP20
 (6.3.2.12) *N/A/I/O/C* **Final Action: Accept**

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Delete 6.3.2.12, 6.3.2.12.1, and 6.3.2.12.2, and replace with the following:
 6.3.2.12 Solid shelving shall comply with 6.3.2.12.1 through 6.3.2.12.3.
 6.3.2.12.1 Solid shelving that is installed in racks that contain Level 2 and Level 3 aerosol products shall be protected in accordance with Table 6.3.2.7(e) through Table 6.3.2.7(f), whichever is applicable.
 6.3.2.12.2 In addition to the in-rack sprinklers shown in Figure 6.3.2.7(a) through Figure 6.3.2.7(e), whichever is applicable, a face sprinkler shall be provided directly below the solid shelf or the elevation of the solid shelf if the face sprinkler is located in a transverse flue.
 6.3.2.12.3 The face sprinklers below the shelving required by 6.3.2.12.2 shall be not greater than 2.4 m (8 ft) apart as far as the solid shelving level extends.
SUBSTANTIATION: The proposal gives the same solid shelving allowance for any ceiling sprinkler system allowed in the storage tables. It provides improved protection where solid shelving is used and clarifies positioning of in-rack sprinklers.
COMMITTEE MEETING ACTION: Accept

30B-18 Log #CP11
 (7.2.3.1.1) *N/A/I/O/C* **Final Action: Accept**

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise 7.2.3.1.1 as follows:
 7.2.3.1.1 Where in-rack sprinklers are required by Table 6.3.2.7(e) through Table 6.3.2.7(f) and where the Level 2 and Level 3 aerosol products are stored for display below the 1.8 m (6 ft) level, the first tier of in-rack sprinklers shall be installed above the display, but no more than 1.8 m (6 ft) above the floor level.
SUBSTANTIATION: Editorial correction.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE, SICILIANO, SMITH

30B-19 Log #CP17
(Table 7.4.1) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: In Table 7.4.1, revise the entry under "In-Rack Sprinkler Type and Arrangement" as follows:
 Quick-response, ordinary temperature, K = 11.2 orifice size pendent sprinklers, maximum 127 mm (5.0 in.) on center spacing located 2.4 m (8 ft) above floor at each rack face and in longitudinal flue space, if a double row rack. A plywood barrier shall be located directly over level of in-rack sprinklers.
SUBSTANTIATION: Both plywood and sheet-metal barriers are permitted by 7.4.6. The proposal eliminates the inconsistency.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-20 Log #CP18
(Figure 7.4.1) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: In Figure 7.4.1, revise footnote C by changing the references to 5.4.7 and 5.4.8 to 7.4.7 and 7.4.8, respectively.
SUBSTANTIATION: Editorial correction.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-21 Log #CP16
(A.5.3.4.1) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise A.5.3.4.1 as follows:
 A.5.3.4.1 Aerosol-filling rooms that utilize flammable propellants have an inherent deflagration hazard. The hazard severity will vary depending upon the amount volume and speed of the accidental flammable gas release. The worst case explosion potential is involves filling more than 10% of the majority of the room volume with a flammable gas-air mixture.
 The ignition of this flammable mixture will result in a significant pressure rise, the production of hot combustion gases, and flame. Failure to adequately ~~It is essential that the design of the room or building is proper for this type of event, otherwise will result in a failure of the room/building and/or roof of could result from~~ the uncontrolled release of the hot combustion gases, flames, and pressure. The only currently available protection against this type of event is the use of damage ~~Damage-limiting construction is the best available technology for this type of event, which consisting consists~~ of a combination of pressure relieving deflagration venting and pressure-resistant construction, as described in (See NFPA 68, Guide for Venting of Deflagrations and other property insurance standards.)
 In some certain cases, existing facilities cannot be retrofitted ~~may be difficult and extremely costly to retrofit~~ with adequate damage-limiting construction. The protection performance goal in these cases is to limit the deflagration to the room of origin. The options available for controlling a deflagration in these such facilities are limited. NFPA 69, Standard on Explosion Prevention Systems, provides some possible approaches that are aimed at either preventing deflagration (e.g., reduce reducing oxygen concentrations, reduce or reducing fuel concentration) or trying to limit the effects of a deflagration (e.g., deflagration suppression, deflagration pressure containment). The most commonly chosen used approach is involves use of a deflagration suppression system. Unfortunately, deflagration ~~Deflagration~~ suppression systems might only be effective against explosion resulting from small gas releases are most likely to be effective when smaller gas releases are involved. These small events might only require the use of damage-limiting construction. However, the continued The use of deflagration suppression systems appears justified is advised since they might protect the personnel protection benefits against a deflagration resulting from small flammable gas-air mixtures in these aerosol-filling rooms cannot be underestimated.

SUBSTANTIATION: The proposal, which is mainly editorial, clarifies the annex note by providing the information more concisely.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-22 Log #CP14
(A.5.4.2(D)) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise the first paragraph of A.5.4.2(D) as follows:
 Adequate ventilation of flammable propellant charging and pump rooms is necessary to maintain these rooms at a safe level, well below the lower explosive limit (LEL) of the propellant being used. The internal volume of these rooms should be as small as practical to minimize the capital and operating costs of the ventilation system, as well as the cost of heating and conditioning the required make-up air. The formula given in 5.4.2(D) is used to determine the required ventilation flow rate. In no case should the required ventilation be less than one air change per minute, ~~unless the propellant filler is provided with its own local exhaust ventilation system.~~ The following are some considerations using the formula to take into account:
 (Balance to remain unchanged.)
SUBSTANTIATION: The language that is proposed to be deleted conflicts with the exception to 5.4.2(D).
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-23 Log #CP10
(A.6.3.2.9 (New), A.6.3.2.13) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Renumber A.6.3.2.13 as a new A.6.3.2.9.
SUBSTANTIATION: The annex note is more appropriately tied to Paragraph 6.3.2.9.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-24 Log #CP2
(Table B.1(e), Table B.1(f), Table B.1(g)) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Revise Annex B, Tables B.1(e), B.1(f), and B.1(g) by adding test location, ignition, and protection information as shown in Tables B.1(a) through B.1(d) as follows:
 Table B.1(e) All Tests
 Test Location 20 ft ceiling (tests conducted on 40 ft x 40 ft metal platform).
 Ignition Ignition by two half-igniters (plastic bags containing 4 oz heptane on cotton rolls).
 Protection Sprinklers installed on 10 ft grid.

 Table B.1(f) All Tests
 Test Location 25 ft ceiling (tests conducted on 40 ft x 40 ft metal platform).
 Ignition Ignition by two half-igniters (plastic bags containing 4 oz heptane on cotton rolls).
 Protection Sprinklers installed on 10 ft grid.

 Table B.1(g)
 Test Location Tests 1 through 5: 25 ft ceiling (tests conducted on 40 ft x 40 ft metal platform).
 Tests 6 through 9: 30 ft ceiling.
 Ignition Tests 1, 2 and 4 through 9: four half-igniters (plastic bags containing 4 oz heptane on cotton rolls).
 Test 3: two half-igniters (plastic bags containing 4 oz heptane on cotton rolls).
 Protection Sprinklers installed on 10 ft grid.
SUBSTANTIATION: The proposal adds missing supplementary information to the noted tables.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

30B-25 Log #CP22
(B.4 (New)) *N/A/10/c* Final Action: Accept

SUBMITTER: Technical Committee on Aerosol Products
RECOMMENDATION: Add a new section B.4 to Annex B containing the following summary tables:
 Table A-1 through A-7 from FM Technical Report "Full-Scale Fire Tests: Sprinkler Protection for Rack Storage of Plastic-Wrapped (Uncartoned) Aerosols (J.I. 0D2R4.PR)."
SUBSTANTIATION: The proposal adds summary tables from FM Global pending their permission to incorporate them into NFPA 30B. The tables will be provided in the NFPA 30B Report on Comments.
COMMITTEE MEETING ACTION: Accept
NUMBER ELIGIBLE TO VOTE: 21
BALLOT RESULTS: Affirmative: 18
BALLOT NOT RETURNED: 3 GEORGE. SICILIANO, SMITH

Supporting Document Five

Kinnier, Frank

From: Benedetti, Bob [bbenedetti@NFPA.org]
Sent: Friday, March 16, 2007 10:46 AM
To: Kinnier, Frank
Cc: Roy, Ben
Subject: NFPA 33-2007

Mr. Kinnier:

I copied the statement printed below my contact information directly from the 2007 edition of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*. Let me know if you need more specific information on these changes from the 2003 edition.

Bob Benedetti

cc

Robert P. Benedetti, CSP, PE

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The following major changes are incorporated into the 2007 edition of NFPA 33:

- (1) In Chapter 3, the definition of spray area has been revised to more clearly define the extent of the spray area and to identify those parts of the process that are not considered part of the spray area.
- (2) In Section 5.5, the allowable materials for vision and observation panels have been expanded to include laminated glass and other listed assemblies. Also, vision and observation panels for powder spray booths are now allowed to be of fire retardant combustible materials.
- (3) Chapter 6 has been amended with text extracted from NFPA 70®, National Electrical Code®, to reflect changes in NFPA 70 to hazardous locations.

- (4) Definitions have been extracted from NFPA 70®, National Electrical Code®, and added to Chapter 6 to recognize Class II, Zones 20, 21, and 22 hazardous (classified) locations.
- (5) Section 7.7 has been revised to allow fire retardant combustible materials for ducts connected to powder coating booths.
- (6) In Chapter 8, the maximum quantities of flammable and combustible liquids have been changed to correlate with changes to NFPA 30, Flammable and Combustible Liquids Code.
- (7) In Chapter 9, the requirements for protection of spray area exhaust ducts have been revised, expanded, and clarified.
- (8) In Chapters 11, 12, and 15, 11.3.6, 12.5.4, and 15.13.4 have been added to designate certain highly resistive workpieces as grounded, if they meet certain criteria of surface conductivity.
- (9) In Chapter 13, more restrictive requirements for high temperature limit switches and interlocks have been added for spray booths and spray rooms that are also used for drying and curing operations.
- (10) In Chapter 14, more definitive requirements have been added for drying, curing, and fusion apparatus used in limited finishing workstations.

Supporting Document Six

Kinnier, Frank

From: Roux, Richard [rroux@NFPA.org]
Sent: Friday, March 23, 2007 8:29 AM
To: Kinnier, Frank
Cc: Henderson, Carol
Subject: RE:

Mr. Kinnier,

NFPA 72®-2007, *National Fire Alarm Code*®, covers the application, installation, location, performance, inspection, testing and maintenance of fire alarm systems, fire warning equipment and emergency warning equipment, and their components. The purpose of this Code is to define the means of signal initiation, transmission, notification, and annunciation; the levels of performance; and the reliability of the various types of fire alarm systems. This Code defines the features associated with these systems and also provides information necessary to modify or upgrade an existing system to meet the requirements of a particular system classification. This Code establishes minimum required levels of performance, extent of redundancy, and quality of installation but does not establish the only methods by which these requirements are to be achieved.

There have been many significant changes between NFPA 72-2002 and NFPA 72-2007. The Technical Correlating Committee on Signaling Systems for the Protection of Life and Property and its eight technical committees received and processed 718 proposals and 627 comments during this revision cycle. The attachment reprint from *NFPA Journal*® highlights the changes.

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Your technical questions may already be answered at www.nfpa.org/codes/interpretations.asp. See the FAQs on NFPA 72®, *National Fire Alarm Code*®.

Visit the *National Electrical Code*® home page at www.necdirect.org. For NEC® FAQs, refer to NEC Technical Interpretation FAQs at www.nfpa.org/nec.

Richard Roux
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rroux@nfpa.org

From: Kinnier, Frank [mailto:KinnierF@chesterfield.gov]
Sent: Thursday, March 22, 2007 10:55 AM
To: Roux, Richard
Subject:

Please forward the five page article on the major changes to NFPA 72 - 2007 edition as we discussed on the telephone this morning. Thanks you for your assistance. Frank

Francis J. Kinnier, Jr. CBO, CFO, CFPS
Deputy Fire Marshal
Chesterfield Fire and Life Safety Division
(804)768-7961



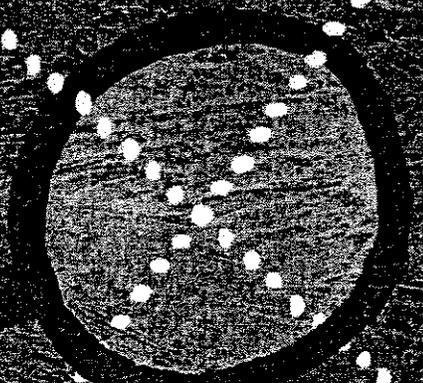
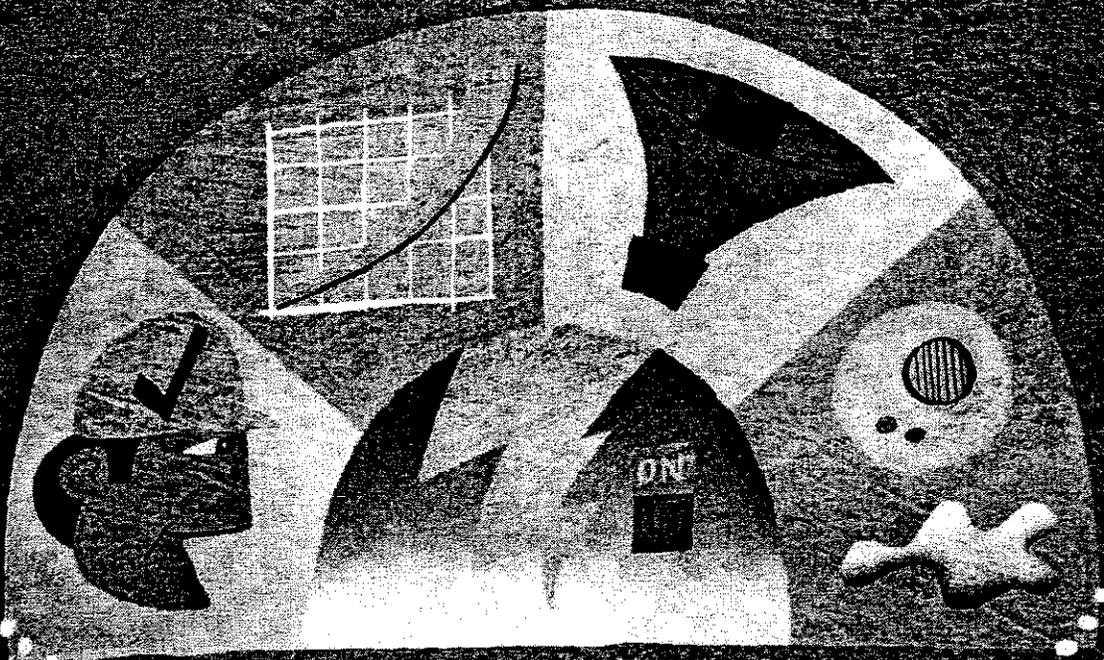
Sound Decisions

Proposed changes to NFPA 72® are based on research and the changing needs of today's world of life safety.

Because fire detection and alarm systems are essential elements in protecting buildings and occupants from fire, NFPA has dedicated years to developing the most complete and comprehensive alarm Code. So when the dozens of Technical Committee members began reviewing the hundreds of proposed changes to NFPA 72®, *National Fire Alarm Code*®, they did so with an eye toward making as many scientifically based advances as possible.

By **John Nicholson**

Illustrations by **Richard A. Goldberg**



"In my opinion, NFPA 72-2007 has the most improvements I have seen over the last three cycles of the Code development, says Technical Correlating Committee chair Wayne D. Moore, P.E., FSFPE, CFPS, SET. "We were able to include current research in almost each chapter of the Code."

Moore of Hughes Associates is also co-editor of the *National Fire Alarm Code Handbook* with NFPA 72 staff liaison Lee F. Richardson.

NFPA's signaling standards date back to 1898 and today's NFPA 72 covers the appli-

Research plays a significant role in the Code development process and the proposed revisions for the 2007 edition of NFPA 72 are no exception.

cation, installation, location, performance, and maintenance of fire alarm systems and their components and is the most used standard of its kind. The Technical Correlating Committee on Signaling Systems for the Protection of Life and Property and its eight technical committees received and processed 718 proposals and 627 comments during this revision cycle. The proposed changes will be presented to NFPA membership for adoption at the Technical Committee Reporting Session at the *World Safety Conference and Exposition** being held in June in Orlando, Florida.

Origin and development of NFPA 72

The 1993 edition of NFPA 72 was a consolidation of the 1989 edition of NFPA 71, *Installation, Maintenance, and Use of Signaling Systems for Central Station Service*; the 1990 edition of NFPA 72, *Installation, Maintenance, and Use of Protective Signaling Systems*; the 1990 edition of NFPA 72E, *Automatic Fire Detectors*; the 1989 edition of NFPA 72G, *Guide for the Installation, Maintenance, and Use of Notification Appliances for Protective Signaling Systems*; the 1988 edition of NFPA 72H, *Guide for Testing Procedures for Local, Auxiliary, Remote Station, and Proprietary Protective Signaling Systems*; and the 1989 edition of NFPA 74, *Installation, Maintenance, and Use of Household Fire Warning Equipment*. Many of the requirements of

these standards were identical or very similar. The recommendations that were taken from the guides (NFPA 72G and NFPA 72H) were changed to mandatory requirements.

Previous changes

The 1996 edition of NFPA 72 incorporated many changes of a technical nature. These changes related to issues such as the *Americans with Disabilities Act*, software testing, fire modeling, and communications.

The 1999 edition represented a major change in Code content and organization. The chapters were arranged to facilitate user friendliness and provide a logical structure. A new chapter on public fire reporting was added, and many technical revisions were made. Annex B (formerly Appendix B) was streamlined to facilitate ease of use, many unenforceable terms were removed, and Chapter 3 was reorganized to facilitate a more logical approach.

The 2002 edition reflected an extensive editorial revision of the Code to comply with the latest edition of the Manual of Style for NFPA Technical Committee Documents. These revisions included the addition of three administrative chapters at the beginning of the Code: "Administration," "Referenced Publications," and "Definitions." Eight technical chapters followed the administrative chapters in the same sequence as in the 1999 edition. Other editorial revisions included the breakout of paragraphs with multiple requirements into individually numbered paragraphs for each requirement, the minimization of use of exceptions, the use of consistent headings for sections and section subdivisions, and reorganization to limit paragraph numbering to six digits.

The 2002 edition also contained a number of technical revisions throughout the Code. These included a major revision of the power supply requirements; new requirement addressing impairments to fire alarm systems; additional requirements concerning the review and approval of performance-based detection system designs; revision of the rules for system survivability from attack by fire; the introduction of rules for an alternate approach for audible signaling; the addition of requirements to address performance-based designs for visible signaling; relocation of testing and maintenance requirements for single- and multiple-station alarms and household fire alarm systems to the testing and maintenance chap-

ter; and revisions to re-establish the prescriptive rules for household fire-warning equipment from the 1996 edition of the Code.

Prior editions of this document have been translated into languages other than English, including Spanish.

The importance of research

Research, Moore says, plays a significant role in the Code development process and the proposed revisions for the 2007 edition of NFPA 72 are no exception. "For example, the work sponsored by the Fire Detection Institute (FDI) with respect to the efficacy and placement of duct smoke detectors and the changes to smoke detector location requirements for beamed and waffle ceilings work performed under the auspices of the Fire Detection and Alarm Research Council of the Fire Protection Research Foundation are both pieces of research made a large impact on Chapter 5, Initiating Devices," says Moore.

Additional research found its way into the proposed changes for the initiating devices chapter. Specifically work in the area of performance-based design. "The work of FM Global in establishing testing methods to determine response time index (RTI) for heat detectors, which will help to move the design community forward with performance-based design alternatives," says Moore.

Additional work performed by R. P. Schifiliti Associates, Inc, again under the auspices of the Fire Detection and Alarm Research Council of the Fire Protection Research Foundation provided guidance on the use of strobe notification appliances mounted on the ceiling of such occupancies as big-box stores, says Moore.

The current requirements for visible signaling in NFPA 72 are based on occupants being alerted by indirect signaling effects. This basis has not been technically validated for large, well-lit spaces. Preliminary testing has indicated that direct signaling in aisled spaces in "big box" type stores should be a cost-effective performance based solution. Testing has indicated that both direct and indirect signaling contribute to occupant notification in aisled spaces such as "big box" type stores. Performance based solutions are cost-effective for these spaces. Tests showed that when aisles that do not have strobes directly overhead, occupants can be alerted by strobes in other parts of the space provided there is sufficient

clearance between the stock and the strobes to permit light penetration onto some part of the shelving or racks of the target aisle. This information was included in the proposed changes.

Mass notification systems

One of the major proposed changes to NFPA 72 reflects the nation's move toward more security and the importance of Homeland Security.

This edition of NFPA 72 will include an annex to address, Mass Notification Systems (MNS). A special task force set up by NFPA in early 2004 reviewed NFPA 72 to identify potential conflicts and establish guidelines for including MNS in the *National Fire Alarm Code*.

"Mass Notification Systems or MNS are now allowed to be not only integrated with a fire alarm system but for the first time in the history of the Code, it has been proposed that the MNS operation will be allowed to take precedence over a fire alarm signal," says Moore.

As outlined in the resulting modifications



proposed to NFPA 72, a Mass Notification System is designed to alert and protect people. The desirable MNS provides early warning and gives personnel inside and immediately adjacent to a facility concise, accurate, timely, and well-directed messages that communicate how they should behave during a variety of emergency situations. Such emergencies include: in-progress or impending terrorist attacks; biological and hazardous chemical leaks; other man-made dangerous situations; accidents; and natural disasters.

The proposed annex explains the need to incorporate mass notification into fire alarm systems for certain occupancies. The proposed

changes to NFPA 72 were to alleviate conflicts and acknowledge the integration of the operational applications. Mass notification capability can be an integral part of any fire alarm system, and the annex recommends minimum guidelines to help designers, installers, and operators apply MNS within buildings and outdoors as well. For messages being delivered from a command center, it's recommended that the system provide secure communication that would withstand hostile eavesdropping and interference. The annex also notes the possible requirement to include first responders in the notification, as required by the Authority Having Jurisdiction (AHJ), as well as off-site emergency officials.

As a mass notification system may be used for other purposes than fire, the Technical Committee removed the words "fire alarm" where it was felt appropriate. In addition, the word "fire" was removed as required, such as "a warning of danger" as opposed to "a warning or fire danger."

Technical Committees were able to address proposals that presented methods to apply, install and test new technology. Some of these are presented in the change summaries below.

The Technical Correlating Committee was also able to address a conflict with the NFPA 70, *National Electrical Code*[®] (NEC), requirements for AFCIs that was received favorably by the NEC Panel responsible for those requirements.

Chapter 4 Funda-



mentals Changes

Chapter 4, Fundamentals of Fire Alarm Systems, deals with all fire alarm systems except household fire alarm systems. The requirements apply to a protected premises fire alarm systems; supervising station fire alarm systems, and public fire alarm reporting systems. The scope of the chapter includes requirements for equipment and personnel; power supplies; compatibility; system functions; performance and limitations; protection of fire alarm control units; zoning and annunciation; monitoring integrity; approval and acceptance; completion documentation; and impairments.

Among the proposed changes in Chapter 4, Section 4.4.5, is the requirement for the protection of the control unit.

According to Technical Committee chairman Dr. Shane M. Clary, the proposed change is now to require protection of the control unit only if the protected premise that the control unit is within is not provided with a complete NFPA 13 sprinkler system. This was done by a new exception to this section.

The proposed revisions to Section 4.4.5 for the protection of control units have also included the protection of notification appliance circuit power extenders and supervising station transmitting equipment. In addition, the Annex to 4.4.5 was modified to provide clarity to the Technical Committee's intent as to what a control unit is. The Annex states,

"For the purposes of 4.4.5, the term fire alarm control unit is not intended to include equipment such as annunciators and addressable devices." The annex has also been updated with guidance for the location of smoke detectors used for the required protection where ceilings exceed 15 feet in height.

The subject of personnel qualification for system designers and installers is another subject addressed in Chapter 4. The committee made changes in the requirements for both designers and installers to provide consistency and to move the current reference to the National Institute of Certification in Engineering Technologies (NICET) to the annex with an appropriate disclaimer. "By direction of the Standards Council and policy of NFPA, NFPA cannot endorse or appear to endorse proprietary products or services. Instead of this reference the body of the code was modified to include 'Personnel that are certified by a nationally recognized fire alarm certification

organization acceptable to the authority having jurisdiction,” says Clary.

Another significant change in Chapter 4 is the complete reorganization of the Record of Completion form to make the form easier to fill out and make the record clearer and more complete. The committee has included an example of a filled-out version of the form in the annex to provide additional guidance.

Chapter 5 Initiating Devices Changes

Chapter 5 covers the design and installation criteria for all sensors or devices that recognize or are used to provide recognition of the existence of a fire or the status of protected space and fire protection systems within that space.

“The 2007 edition of the *National Fire Alarm Code* will have a number of revisions to the Chapter 5, Initiating Devices, that are noteworthy,” says Technical Committee member John M. Cholin, P.E., FSFPE.

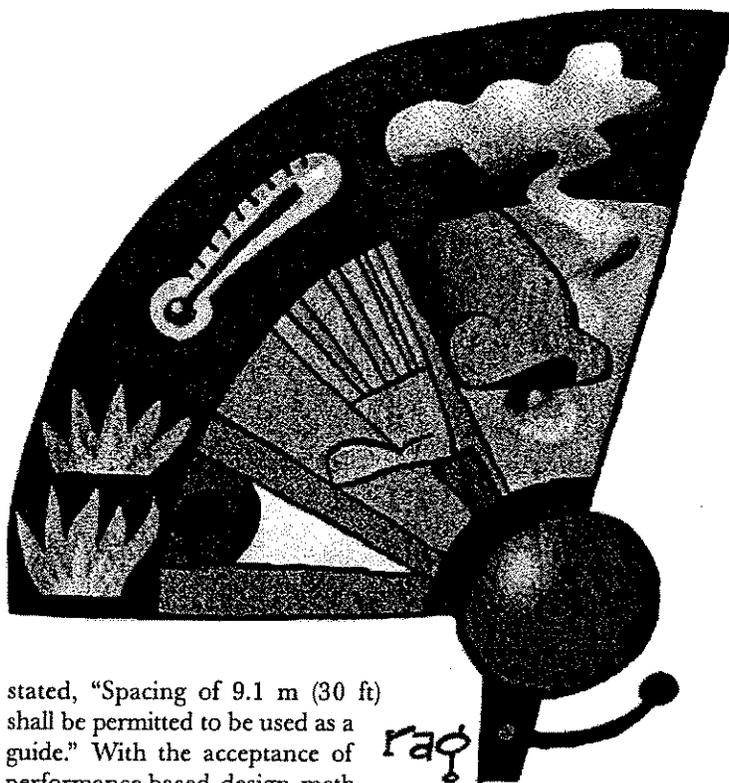
These include requirement of the inclusion of Response Time Index (RTI) on heat detector documentation and marking, a prescribed smoke detector spacing in the absence of performance-based design criteria, revised recommendations for smoke detector locations on ceilings with beams and bays, recognition of both video smoke detection and video flame detection, revisions to the recommendations for the location of duct-type smoke detectors, and a new section on Combination, Multi-Criteria and Multi-Sensor Detectors.

“After an extended effort over a number of revision cycles, the requirement for inclusion of heat detector, RTI, has been reinstated in NFPA 72. RTI is a measure of the rate the temperature of the detector increases when subjected to an environment of increasing temperature. It has been known for decades that heat detectors exhibit a ‘thermal lag’,” says Cholin.

The RTI is a quantification of that thermal lag. With the inclusion of RTI in the detector design documentation and markings, the engineers can now use fire-modeling tools to accurately predict response of heat detectors, says Cholin.

Smoke detector spacing

“Smoke detector spacing has always been a thorny issue for the Technical Committee,” says Cholin. Earlier editions of the *National Fire Alarm Code* use “permissive” language for the spacing of smoke detectors. The text



stated, “Spacing of 9.1 m (30 ft) shall be permitted to be used as a guide.” With the acceptance of performance-based design methods the Technical Committee recognized that the latitude implied by this type of permissive language was no longer needed, nor advisable, says Cholin.

“With the 2007 edition of the *National Fire Alarm Code*, the proposed language ‘In the absence of specific performance-based design criteria, smoke detectors shall be located using 30 foot spacing’ recognizes that if conditions exist where this spacing does not appear to be warranted the designer should use the performance-based design methods in Annex B,” Cholin says.

The recommendations for smoke detector placements on ceilings with joists, beams, purlins, and bays have often been the source of confusion. “Finally, the Technical Committee had the benefit of some research which supported the notion that for some applications the requirements in this section were excessive and did not lead to enhanced system performance. Consequently, this section has been modified to reflect this recent research,” Cholin says.

Further research is currently under way under the auspices of the Fire Detection and Alarm Research Council of the Fire Protection Research Foundation, which should provide additional information for future revisions to this section.

Since the adoption of the 2002 edition of NFPA 72, many manufacturers have begun to market both smoke detection and flame detection that utilize video image analysis. According to Cholin, the Technical Committee did not want the lack of a section on these technologies in the *National Fire Alarm Code* to stifle progress in this area of product development, yet it was clear that the manufacturers of these products had not yet developed design rules that established limits on the applicability and extent of coverage for these systems analogous to those that exist for more conventional technologies. "New sections have been added to recognize these technologies but explicit design rules have yet to be developed," Cholin says.

The Annex A material regarding the placement of duct-type smoke detectors have been completely re-written, incorporating the findings from the Fire Detection Institute Duct-Type Smoke Detection Research Project. "Many of the recommended limitations on the location of duct-type smoke detectors in the Annex of earlier editions were found to be unnecessarily restrictive. The recommendations in the revised Annex material remove these restrictions and provide additional tutorial information," says Cholin.

Finally, the increasing popularity of smoke detectors that use a number of different sensing means in a single unit necessitated an explicit recognition of these types of detectors. A new section on Combination, Multi-Criteria and Multi-Sensor Detectors has been added, says Cholin.

"The user of the *National Fire Alarm Code* will find a few other editorial revisions to Chapter 5, Initiating devices where proposals from the public identified areas where the clarity of the text could be improved. However, these editorial revisions do not produce a material change in the way we design systems, just in the ease with which we do it," says Cholin.

Chapter 6 Protected Premises Changes

The requirements for the installation and performance of fire alarm systems within protected premises are covered in Chapter 6. A number of significant changes have been made to this chapter. These changes include Included between these are the updating and clarification of requirements for combination systems, suppression system alarm and supervisory inputs, emergency voice/alarm communications sys-

tems, firefighter communications within buildings (including in-building emergency radio communication systems), and elevator recall and shutdown. Additional changes have been proposed to allow mass notification system inputs in combination systems to take priority over fire alarm system inputs.

Combination systems are fire alarm systems that are also used for other non-fire alarm purposes and the integration of other systems with fire alarm systems is becoming more and more common. The requirements for combination systems have been revised for clarity and to more precisely address signaling priorities, including those used for mass notification. Substantial annex material has been added to explain the priorities and the precautions that need to be considered when non-fire systems are integrated with the fire alarm systems.

The requirements that relate to the connection of suppression system alarm and supervisory inputs to fire alarm systems have been reorganized and clarified. These inputs are not required by NFPA 72 but when they are required, typically by other codes and standards, they must be connected either to the building fire alarm system or to a dedicated function fire alarm control unit in accordance NFPA 72.

The section on emergency voice/alarm communications systems has also been reorganized and clarified. These systems perform vital life safety functions for occupancies where they are required by building or occupancy codes or by local authorities, most notably for high-rise buildings. The requirements included in this section address automatic versus manual response, the functional sequence for voice messaging, location and operation of controls, and survivability when these systems are used for relocation or partial evacuation. Code users should find these reorganized and updated requirements to be more user friendly.

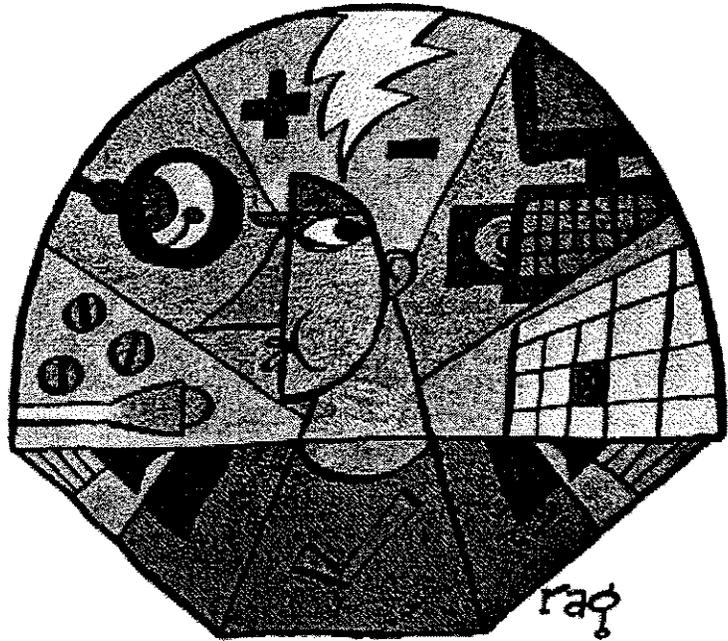
New provisions to facilitate the use of firefighter in-building emergency radio communication systems have been proposed for the next edition of NFPA 72. Firefighters are beginning to rely on radio communications within buildings rather than the traditional two-way telephone service, and the installation of radio communications enhancement systems such as bi-directional antennas within buildings is becoming more common. Provisions have been introduced to recognize

the installation of these enhancement systems and allow them to be monitored by the building fire alarm system.

With regard to the later, The requirements for interfacing building elevators have been completely rewritten to more effectively correlate with current and future requirements of ASME A17.1, *Safety Code for Elevators and Escalators*. One such future requirement will address the long-debated requirement of elevator shunt trip and require the heat detector used to initiate shunt trip to first initiate elevator recall before shut trip or sprinkler activation occurs.

System definitions

One of the more significant changes proposed for the next edition of NFPA 72 is the clarification and addition of definitions for protected premises fire alarm systems. The definition of "Protected Premises (Local) Fire Alarm System" has been shortened from "A protected premises system that sounds an alarm at the protected premises as the result of the manual operation of a fire alarm box or the operation of protection equipment or systems, such as water flowing in a sprinkler system, the discharge of carbon dioxide, the detection of smoke, or the detection of heat" to simply "A fire alarm system located at the protected premises." Along with this simplified definition, three new sub-definitions have been added: one for "Building Fire Alarm System," "Dedicated Function Fire Alarm System" and "Releasing Fire Alarm System." A "building fire alarm system" is one that serves the general fire alarm needs of a building and that provides either or both occupant notification and fire department notification. A "dedicated function fire alarm system" is one that is installed specifically to perform fire safety functions where a "building fire alarm system" is not required. A "releasing fire alarm system" is one that is either part of a fire suppression system or one that provides control inputs to a fire suppression system and outputs for other signaling and notification. Corresponding changes in terminology have been made to Code requirements to more precisely express what is intended for the particular type of system being addressed requirements. As an example a new section has been added at the beginning of Chapter 6 to specify that "in facilities without a building fire alarm system, a dedicated function fire



alarm system shall be permitted and shall not be required to include other functions or features of a building fire alarm system." This will clarify that, for example, when a system is installed to supervise a sprinkler system, it is not automatically required that features such as occupant notification be installed throughout the building.

Chapter 7 Notification Appliances Changes

Chapter 7 covers the performance, location and mounting of notification appliances used for occupant evacuation or relocation or for providing information to occupants or staff.

Fire alarm versus other systems

One significant change made throughout this chapter is the removal of the words "fire" or "fire alarm," where appropriate, so that the requirements of the chapter can be applied not only to fire alarm systems but also to mass notification systems (MNS) or other systems. Additionally, a new paragraph addressing the application of the chapter proposes that "Notification appliances shall be permitted to be used within buildings or outdoors and to target the general building, area or space, or only specific parts of a building, area, or space designated in specific zones or sub-zones." Requirements have also been added to address the installation and performance for wide area (outdoor) audible and visible signaling. In addition requirements have been added to

address the use of color for lights, rather than the clear or nominal white required for a fire alarm, when lights are used to signal occupants to seek information or instructions.

Audible Appliances

The current total sound pressure level of 120 dBA has been changed to 110 dBA to correlate with ADA guidelines and other codes. In addition OSHA information on permissible noise exposures has been added to the annex with an explanation of how exposure time can impact hearing loss.

The requirement for a minimum appliance rating of 45dBA in private mode application in 7.4.3.1 in the current edition of NFPA 72 has been deleted. The same change was made in the 2002 edition for public mode application. The performance requirements for minimum sound pressure level ensure the system will be loud enough.

Revisions have been made to clarify that the audibility requirements in the code (minimum sound pressure levels) apply to alert and evacuation tones and not to voice messages. Audible notification appliances used for exit marking, explained in the following paragraph, have also been exempted from the audibility requirements.

Exit marking audible notification appliances, also called directional sounders, are those that mark building exits and areas of refuge by the sense of hearing. These sounders are based on a new technology that allows listeners to locate and identify exits in an emergency situation due to the broadband frequency content of their sound. Provisions have been included in the code to address the installation and performance these appliances and assure that their operation does not mask the effect of traditional fire alarm signals. Annex material has been included to explain and demonstrate basis behind this technology.

Visible appliances

The room spacing tables for both wall-mounted and ceiling-mounted visible appliances have been updated to include additional spacing provisions corresponding to commercially available appliances of specific candela ratings.

Revisions have been proposed to address "groups" of synchronized visible notification appliances (strobes). The code currently addresses strobe synchronization on an indi-

vidual basis. The proposed change will allow two groups of separately synchronized strobes to be installed within the same field of view. This provision includes the synchronization of strobes operated by separate systems. In addition it has been clarified that synchronization does not apply where strobes located inside a building are viewed from outside the building.

The requirements for performance-based visible signaling have been revised to make it clear that the minimum illumination requirement applies to the specified angles of the polar dispersion planes identified by ANSI/UL 1971, *Standard for Safety Signaling Devices for Hearing Impaired*, or equivalent.

Tactile appliances

A new section has been proposed to address the installation and performance of tactile notification appliances. Tactile appliances are those that alert by the sense of touch or vibration. It is proposed that these appliances be permitted if they are used in addition to required audible and/or visible appliances. Tactile appliances must meet the performance requirement of ANSI/UL 1971, or equivalent.

Chapter 8 Supervising Station Changes

The Technical Committee on Supervising Station Fire Alarm Systems has made several minor editorial changes to the text of Chapter 8, Supervising Station Fire Alarm Systems. Chapter 8 presents the requirements for three supervising services: central station, proprietary, and remote station. It also represents the requirements for various transmission technologies.

According to Dean K. Wilson P.E., former chairman of the Technical Correlating Committee and author of the handbook chapters on Chapters 8 and 9, the changes to Chapter 8 amplify, clarify, or simplify the text without substantially changing the intent of the requirements.

"One significant change includes a new Section 8.2.3, which requires a provider of central station service to notify the subscriber of any change in service provider. This will help eliminate problems that might occur when one alarm service provider purchases the customer base of another alarm service provider," says Wilson.

Another significant change includes extensive revision to the requirements for the certificate or placard for central station service. Section 8.2.4 entitled "Identification of Central Station Service," generalizes the previous wording to eliminate any reference that a user

might construe as favoring the listing services provided by a particular listing agency. The actual requirements remain essentially the same as in the previous edition, says Wilson.

A revision to Section 8.4.2.1.1— part of the requirements for a Remote Supervising Station Fire Alarm System— permits a premises to transmit alarm, supervisory, and trouble signals, individually or collectively, to the public fire service communication center or to a location acceptable to the authority having jurisdiction. "This change mandates the transmission of trouble signals to correlate with the change made in the 2002 edition of NFPA 72 that reduced the required standby power from 60 hours to 24 hours," Wilson says.

A revision to Section 8.5.3.6.1 corrects a revision made in NFPA 72-2002 and clarifies the requirements for different types of circuits of directly connected non-coded transmission systems. "The wording in the 2002 edition combined requirements that should have remained separate because they actually apply to two different types of circuits. The revision corrects this inappropriate combination," says Wilson.

Chapter 9 Public Reporting Changes

The Technical Committee on Public Fire Alarm Reporting Systems has made a number of extensive revisions to amplify, clarify, or simplify the text of Chapter 9, Public Fire Alarm Reporting Systems. However, while of great help to future users of this Chapter, these changes have not materially changed the intent of the text as it appeared in previous editions, says Wilson.

Chapter 9 addresses two fire alarm systems: public fire alarm reporting systems and auxiliary fire alarm systems.

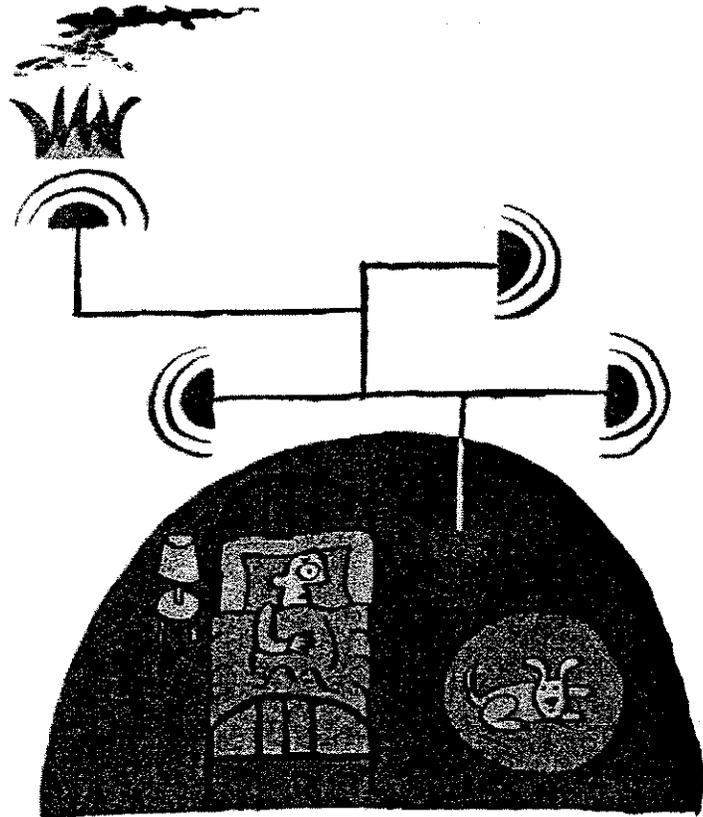
"One significant change includes the addition of requirements in Section 9.2.3 to permit the use of optical fiber cable as a means of interconnecting the components of such a system. Where appropriate, reference to the use of optical fiber cable now appears throughout the text of Chapter 9," says Wilson.

Another significant change includes the addition of Section 9.3.7. This Section requires that persons designing, installing, or servicing public fire alarm reporting systems give evidence of their qualifications to deal with such unique systems, says Wilson.

Chapter 10 Testing and Maintenance

Chapter 10, Inspection, Testing, and Maintenance,

covers the minimum requirements for inspection, testing, and maintenance of fire alarm systems; single- and multiple-station smoke and heat alarms; and household fire alarms systems. Specifically, Chapter 10 includes requirements for visual inspection and inspection frequencies, testing and test methods, testing frequencies, maintenance requirements, and record keeping.



Personnel Qualification

The subject of personnel qualification, addressed in Chapter 4 for system designers and installers, has also been addressed in a similar fashion for service personnel in Chapter 10. According to Technical Committee member Tom Hammerberg, changes were made for consistency with those made for Chapter 4 and to move current references to the National Institute of Certification in Engineering Technologies (NICET) and to the International Municipal Signal Association (IMSA) to the annex with an appropriate disclaimer. The body of the code will include a more refined listing of the types of qualified personnel permitted by the code with certification organizations

expressed in a more generic fashion. Substantial annex material has also been proposed to provide further guidance for what is expected.

Other changes

As mentioned at the beginning of this article, the Code has been updated to address equipment introduced through new technology in several areas. The testing and maintenance chapter has also been updated to address for this new equipment. Requirements for inspection, testing and maintenance have been provided for combination, multi-criteria and multi-sensor detectors, video image smoke and flame detectors, in-building emergency radio communication systems, and exit marking audible notification appliances.

Section 10.2.6 has been added to more specifically address inspection and testing of interfaced equipment and fire safety functions. In this same regard, Table 10.4.2.2 has been updated to specifically require testing the fire safety functions by operating or simulating the operation of alarm signals. Annex material has been provided further explain the coordination needed for the testing of fire safety functions such as elevator recall and shut-down.

The inspection and testing tables and form has been updated to specifically address combination systems including fire extinguisher monitoring devices and systems, carbon monoxide detection systems and other systems.

Other notable changes proposed for Chapter 10 are summarized below. Explicit requirements for inspection, testing and maintenance of public fire alarm reporting system power supplies and transmission equipment have been proposed. Revisions are proposed that will correlate the testing frequencies for vane-type (semiannually) and pressure-type (quarterly) waterflow devices with the requirements of NFPA 25. A revision to the record requirements for site-specific software has been made to assure that an onsite copy of the software is stored in non-volatile non-erasable, non-rewritable memory.

Finally an example of a completed Inspection and Testing Form has been proposed for Annex A of NFPA 72.

Chapter 11 Household Changes

The Technical Committee for Chapter 11, Single- and Multiple-Station Alarms and Household Fire Alarm Systems, has made a

number of changes to promote the use of additional interconnected smoke alarms throughout dwellings and to address new technology issues, says Technical Committee chair Dan Gottuck, P.E.

In past editions, requirements for the installation of smoke alarms in bedrooms and for the interconnection of smoke alarms (that is, when one sounds, they all sound) were restricted to new construction.

"The Technical Committee has changed the Code to require a uniform set of installation requirements regardless of occupancy age. It has always been the recommendation for all construction that smoke alarms be located in bedrooms as well as outside of each separate sleeping area and on each level of a dwelling unit. The interconnection of all alarms in the dwelling also assures that an alarm signal meeting the Code will be provided in the bedrooms regardless of the location of the first sounding smoke alarm, which may be two floors away from the sleeping area. These changes are partly enabled by several new wireless technologies that permit battery-operated smoke alarms to be interconnected," says Gottuck.

The Technical Committee has also approved criteria to determine the number of smoke alarms needed on a floor that exceeds 1,000 square feet (92 square meters). These criteria require that all points on a ceiling shall have a smoke alarm within a distance of 30 feet (9 meters) in travel distance or that the number of smoke alarms per the total square footage of floor area on that level be a value of one or more per 500 square feet (46 square meters). The spacing requirements are met by meeting either criterion. Generally, for floors with bedrooms, this requirement does not change the number of smoke alarms beyond those already required in the code. For large dwellings, the requirements tend to lead to the use of one or two additional smoke alarms on floors that are only required to have one alarm per the current code.

Based on different requests to add requirements for the use of voice notification, the Technical Committee developed language that clearly states how voice can be integrated into the alarm signal. Consistent with the required temporal signal specifications in ANSI S3.41-1996 (the T3 signal), a voice message may be incorporated between the prescribed pause periods in the signal. A voice message can also

be used if it is first preceded by eight cycles of the temporal signal (i.e., 32 seconds of the T3) and does not last for more than 10 seconds followed by two more cycles of the T3 pattern. The TC recognized that current research suggests that voice may be beneficial to some portions of the population; however, the requirements ensure that the majority of the population will be effectively awakened by the audible emergency evacuation signal. The Technical Committee has also formed a joint task group with the Technical Committee on Notification Appliances to further evaluate notification signals, particularly related to the use of low frequencies. Recent research by Victoria University conducted under a Research Foundation project has shown that lower frequency alarms are more effective at waking people over 65 years of age.

Recent editions of the NEC have required that smoke alarms in bedrooms be powered on AFCI protected circuits. This requirement has generated concern among varying parties for various reasons, ranging from reported incompatibility problems between alarms and AFCI breakers to whether alarms will be functional if the AFCI activates and prevents the smoke alarm from being powered. "In response to these concerns, a new requirement has been added to require that any smoke alarm powered by an AFCI circuit shall have a secondary power source. The NEC is also expected to be modified with a note to refer readers to NFPA 72 relative to secondary power source requirements," Gottuck says.

Consensus process

Changes to the Code occur as a result of Public Proposals submitted to NFPA Standards Administration. These Public Proposals come from a wide variety of users. Even some of the members of the eight Technical Committees that have responsibility for a portion of the document submit Public Proposals.

Each Public Proposal must receive a careful review by the appropriate Technical Committee. During that review, the Committee must take formal action on each proposal. The Committee can also generate a Committee Proposal if they feel they must make changes to some portion of the document.

Once the Committee acts on the Proposals, they must confirm their action by letter ballot. After the letter ballots have been processed by

the eight Technical Committees the Technical Correlating Committee must review the actions. The Correlating Committee will attempt to resolve any issues of correlation between the various Technical Committees. The actions taken by the Correlating Committee will also receive confirmation by letter ballot.

NFPA then publishes the Report on Proposals so that all interested parties may review the action taken by the Committees and Correlating Committee. During the 60 days that follow, anyone may submit a Public Comment relating to any of the Proposals.

Once again, the Committees must review and act on the Public Comments. And, the Correlating Committee must review the actions taken by the Committees. Following these detailed steps in the process, NFPA will publish the Report on Comments.

At the NFPA *World Safety Congress and Exposition* in June, the NFPA members attending the Technical Report session will review the changes proposed for NFPA 72-2007. A new step in the NFPA code development process will set the agenda for this meeting by requiring individuals who wish to propose amendments at this meeting to submit advanced notice of their intentions. The motions that can be made to amend the technical committee reports are limited by NFPA Regulations. Individuals, who have submitted a notice of intent to make a motion (NIT-MAM) before the April 7, 2006 deadline, and where the motion has been certified to be a proper motion under NFPA regulations, will be allowed to present their motion in person at the meeting. These certified motions, posted in advance of the meeting, set the meeting agenda. Individuals who submitted a Proposal or Comment could make a motion to have their proposal or comment (or an identifiable part) accepted during this session. Those present may also make certain other motions. After consideration of each amending motion, Then the members present vote on the amended document, and it moves on to the Standards Council.

"Each TC deserves recognition for their commitment and hard work. I look forward to a responsible review and a favorable vote at the June WSCE," says Moore. □

JOHN NICHOLSON is the executive editor of the NFPA Journal. He can be reached at jnicholson@nfpa.org.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

USBC – Virginia Maintenance Code

Code Change No. M-104.5.4

Nature of Change: (text is on code change form)

To add language to the Virginia Maintenance Code to clarify that obtaining a permit under the Virginia Construction Code does not extend time frames for compliance with violations cited under the Virginia Maintenance Code.

Proponent: Virginia Building and Code Officials Association (VBCOA)

Staff Comments:

The VBCOA Property Maintenance Committee and the Administrative Provisions Committee were involved in developing this change to better coordinate the Virginia Construction Code and the Virginia Maintenance Code. The proposal was considered by Workgroup 2 and is recommended to move forward as a consensus change.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

**VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CODE CHANGE FORM**

Address to submit to: DHCD, The Jackson Center 501 North Second Street Richmond, VA 23219-1321 Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.virginia.gov	7/26/07	Document No. <u>m-104.5.4</u> Committee Action: _____ BHCD Action: _____
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Submitted by: Ralston McInnis Representing: VBCOA Property Maintenance Committee

Address: 400 Granby, Norfolk, Virginia 23510 Phone No. (757) 664-6511

Regulation Title: **Notices, reports and orders** Section No(s): Section 104.5.4 Virginia Maintenance Code; part III USBC.

Proposed Change:

104.5.4 Notices, reports and orders. Upon findings by the code official that violations of this code exist, the code official shall issue a correction notice or notice of violation to the owner or the person responsible for the maintenance of the structure. Work done to correct violations of this code subject to the permit, inspection and approval provisions of the Virginia Construction Code, shall not be construed as authorization to extend the time limits established for compliance with this code.

104.5.4.1 Correction notice. The correction notice shall be a written notice of the defective conditions. The correction notice shall require correction of the violation or violations within a reasonable time unless an emergency condition exists as provided under the unsafe building provisions of Section 105. Upon request, the correction notice shall reference the code section that serves as the basis for the defects and shall state that such defects shall be corrected and reinspected in a reasonable time designated by the code official.

104.5.4.2 Notice of violation. If the code official determines there are violations of this code other than those for unsafe structures, unsafe equipment or structures unfit for human occupancy under Section 105, the code official may issue a notice of violation to be communicated promptly in writing to the owner or the person responsible for the maintenance or use of the building or structure in lieu of a correction notice as provided for in Section 104.5.4.1. In addition, the code official shall issue a notice of violation for any uncorrected violation remaining from a correction notice established in Section 104.5.4.1. A notice of violation shall be issued by the code official before initiating legal proceedings unless the conditions violate the unsafe building conditions of Section 105 and the provisions established therein are followed. The code official shall provide the section numbers to the owner for any code provision cited in the notice of violation. The notice shall require correction of the violation or violations within a reasonable time unless an emergency condition exists as provided under the building provisions of Section 105. The owner or person to whom the notice of violation has been issued shall be responsible for contacting the code official within the time frame established for any reinspections to assure the violations have been corrected. The code official will be responsible for making such inspection and verifying the violations have been corrected. In addition, the notice of violation shall indicate the right of appeal by referencing the appeals section of this code.

Note: ~~Work done to correct violations of this code is generally subject to the permit, inspection and approval provisions of the Virginia Construction Code.~~

Supporting Statement:

The 'note' in the 2003 Virginia Maintenance Code is being added to the text of Section 104.5.4 as a pointer to the Virginia Construction Code for obtaining permits when necessary for repairs and new language is added to clarify that obtaining a permit under the Virginia Construction Code does not extend the time frames for compliance with the Virginia Maintenance Code.”

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Maintenance Code
Code Change No. M-105.1**

Nature of Change: (text is on code change form)

To remove redundant language from the unsafe building section of the Virginia Maintenance Code.

Proponent: City of Fredericksburg

Staff Comments:

The language “as determined by the code official” has been in the unsafe building provision since its inception and was intended to be a safeguard for the building owner to emphasize that the Maintenance Code does not require demolition unless the code official determines it necessary. The proponent states that the provision is being misread to prevent an owner from voluntarily demolishing a building. Staff notes that voluntary demolitions are regulated by the Virginia Construction Code, not the Virginia Maintenance Code. However, staff agrees that the language in question is redundant as the last sentence in the provision clearly gives the code official the authority to order demolition. Staff would suggest a rewording of the provision as follows (showing final language):

105.1 General. This section shall apply to existing buildings or structures which are classified as unsafe or unfit for human occupancy. All conditions causing such structures to be classified as unsafe or unfit for human occupancy shall be remedied or as an alternative to correcting such conditions, the structure may be vacated and secured against public entry or razed and removed. Vacant and secured structures shall still be subject to other applicable requirements of this code. Notwithstanding the above, when the code official determines that an unsafe structure or a structure unfit for human habitation constitutes such a hazard that it should be razed or removed, then the code official shall be permitted to order the demolition of such structures in accordance with applicable requirements of this code.

This proposal was not submitted in time to be reviewed by the workgroup process used in this code change cycle.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

**VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CODE CHANGE FORM**

Address to submit to: DHCD, The Jackson Center 501 North Second Street Richmond, VA 23219-1321 Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.virginia.gov	8/2/07	Document No. <u>m-105.1</u> Committee Action: _____ BHCD Action: _____
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Submitted by: John Walsh Representing: City of Fredericksburg
Address: 715 Princess Anne Street Phone No. (540) 372-1080 ext 285
Regulation Title: Unsafe Structures Section No(s): 105.1

Proposed Change:

105.1 General. This section shall apply to existing buildings or structures which are classified as unsafe or unfit for human occupancy. All such structures shall be made safe through compliance with this code *or be razed and removed as determined by the code official* or shall be vacated and secured against public entry; however, such vacant and secured structures shall still be subject to other applicable requirements of this code. Notwithstanding the above, when the code official determines that an unsafe structure or a structure unfit for human occupancy constitutes such a hazard that it should be razed or removed, then the code official shall be permitted to order the demolition of such structures in accordance with applicable requirements of this code.

Supporting Statement:

It has been a long standing general law principal that under Virginia law one of your rights as a property owner is to dispose of that property. Recently it was discovered that some Commonwealth, city and county attorneys have read this section to say that once an unsafe notice is issued the owner loses that right unless the code official specifically orders the demolition. If you look at a strict reading of the text it currently states: *All such structures shall be made safe through compliance with this code or shall be vacated and secured against public entry.* Because the code says shall some local attorneys have viewed that as a clear directive that strips the right to demolish the property because it is not listed in the text. It puts the code official in the awkward position of having to order the demolition through the *hazard* language located at the end of this section in order for the owner to re-gain the right to demolish the property. While this was clearly never the intent of this section, based on the language contained in the text it is a reasonable interpretation of this section. The unintended consequence of this language is that it provides an extraordinary protection for a structure deemed to be unsafe, and

strips the owner's right to demolish at a time when they need it the most. For example: if a person bought a brand new house and decided to tear it down and start over because they didn't like the looks of it, that would be allowed. But, if the roof fell in on that very same building and the code official issued an unsafe notice without **requiring** the demolition under the hazard conditions then the owner would be bound to repair the roof regardless of cost or hardship without the option of demolition. While everyone agrees that this is a ridiculous example, it is a valid scenario under the current language. This change is also needed to clarify the hazard language at the end of the regulation. The proposed language would clarify that under an unsafe notice a person has the option of demolishing the structure as abatement to the unsafe notice. In effect the person is *authorized* to do the demolition. But if the structure has become such a problem that it becomes a hazard then the code official is permitted to *order* the demolition of the structure. This change is important to define the difference between authorization (options: fix, secure, remove) and an order (raze and remove only, no options).

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Maintenance Code
Code Change Nos. M-105.1.2, M-105.6 and M-202**

Nature of Changes: (text is on code change forms)

Three comprehensive changes addressing unsafe conditions under the Virginia Maintenance Code.

Proponent: VBCOA Property Maintenance Committee

Staff Comments:

The changes utilize some language from a hazard abatement code from one of the legacy code groups and give more prescriptive criteria for addressing unsafe conditions. However, through the work group meeting process, some concerns were raised about the correlation of the provisions and as the nature of the changes is comprehensive, it was recommended that the changes be continued to the next code change cycle so further consideration could be given to assuring that the current standards for unsafe conditions are not eliminated or comprehensively changed.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>M-105.1.2</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>Ralston McInnis</u> Representing: <u>VBCOA Property Maintenance Committee</u></p> <p>Address: <u>400 Granby - Norfolk, VA 23510</u> Phone No.: <u>(757) 664-6563</u></p> <p>Regulation Title: <u>Unsafe Structures or Structures Unfit For Human Habitation;</u> Section No: <u>Section 105 Virginia Maintenance Code</u></p>		

Proposed Change:

Section 105.1.2 Component Serviceability.

Materials in structural systems and members thereof without adequate stiffness, or Nominal Strength, or structural systems or members that have exceeded their limit state shall be determined to be unsafe and shall be replaced or repaired according to the provisions of Parts 1 & 2 of the USBC.

Section 105.1.2.1 Loads Effects. The loads effects of structural members that exceed the limitations of the existing building's structural system as established by a Registered Design Professional, shall be determined to be unsafe and shall be replaced or repaired according to the provisions of Parts 1 & 2 of the USBC.

Section 105.1.2.2 Limit State of Materials.

In addition to the other requirements for component serviceability, the following conditions for various materials shall be considered to determine if the material is beyond its limit state. Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be replaced or repaired according to the provisions of the USBC:

Section 105.1.2.3 Soils. Soils that have been subjected to any of the following conditions shall cause the building or portion thereof to be determined beyond its limit state, unless substantiated otherwise:

- a. Collapse of footing or foundation system.
- b. Damage to footing, foundation, concrete or other structural element due to soil expansion.
- c. Adverse affects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil.
- d. Inadequate soil as determined by a geo-technical investigation.
- e. Where the allowable bearing capacity of the soil is in doubt
- f. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.

Section 105.1.2.4 Concrete. Concrete that has been subjected to any of the following conditions shall cause the building components to be determined beyond its limit state unless substantiated otherwise by an approved method:

- a. Deterioration
- b. Ultimate deformation
- c. Fractures
- d. Fissures
- e. Significant spalling
- f. Exposed reinforcement
- g. Detached, dislodged or failing connections

Section 105.1.2.5 Aluminum. Aluminum that has been subjected to any of the following conditions shall cause the building components to be determined beyond their limit state unless substantiated otherwise by an approved method:

- a. Deterioration
- b. Corrosion
- c. Elastic Deformation
- d. Ultimate deformation
- e. Stress or strain cracks
- f. Joint fatigue
- g. Detached, dislodged or failing connections

Section 105.1.2.6 Masonry. Masonry that has been subjected to any of the following conditions shall cause the building components to be determined beyond their limit state unless substantiated otherwise by an approved method:

- a. Deterioration
- b. Ultimate deformation
- c. Fractures in masonry or mortar joints
- d. Fissures in masonry or mortar joints
- e. Significant spalling
- f. Exposed reinforcement
- g. Detached, dislodged or failing connections

Section 105.1.2.7 Steel. Steel that has been subjected to any of the following conditions shall cause the building components to be determined beyond their limit state unless substantiated otherwise by an approved method:

- a. Deterioration
- b. Elastic deformation
- c. Ultimate deformation
- d. Metal fatigue
- e. Detached, dislodged or failing connections

Section 105.1.2.8 Wood. Wood that has been subjected to any of the following conditions shall cause the building components to be determined beyond its limit state unless substantiated otherwise by an approved method:

- a. Ultimate deformation
- b. Deterioration
- c. Damage from insects, rodents and other vermin
- d. Fire damage beyond charring
- e. Significant splits and checks
- f. Horizontal shear cracks
- g. Vertical shear cracks
- h. Inadequate support
- i. Detached, dislodged or failing connections
- j. Excessive cutting and notching

Supporting Statement: This code change provide specific descriptions of components or materials that have fallen into decay or deterioration to the extent that they cause a portion or portions of a building or structure to be regarded as a dangerous or unsafe building or premises. This then allows the Code Inspector to more accurately identify these specific conditions of materials or components that are within a building or structure to declare a building to be dangerous and unsafe.

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>M-105.6</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>Ralston W. McInnis</u> Representing: <u>VBCOA Property Maintenance Committee</u></p> <p>Address: <u>400 Granby Street – Norfolk, VA 23510</u> Phone No.: <u>(757) 664-6563</u></p> <p>Regulation Title: <u>Part III of the USBC</u> Section No(s): <u>105.6 Virginia Maintenance Code</u></p>		

Proposed Change:

105.6 Posting of placard. In the case of a structure unfit for human habitation, at the time the notice is issued, a placard with the following wording shall be posted at the entrance to the building: "THIS STRUCTURE IS UNFIT FOR HABITATION AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL." in the case of an unsafe structure, if the notice is not complied with, a placard with the above wording shall be posted at the entrance to the building. Upon the failure of the owner or person responsible to comply with Section 105.4 (Notice of unsafe structure of structure unfit for human occupancy) with in the time given , the code official shall post at each entrance of the building or on the premises a placard prohibiting the occupancy or use of the structure or equipment. After a building is placarded, entering the building shall be prohibited except as authorized by the code official to make inspections, to perform required repairs or to demolish the building. In addition, the placard shall not be removed until the building is determined by the code official to be safe to occupy, nor shall the placard be defaced.

105.6.1 Imminent Danger: In the case of imminent danger, whether or not legal action to compel compliance has been instituted or not, a placard with the wording "THIS STRUCTURE IS UNSAFE OR UNFIT FOR HUMAN HABITATION AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL – It shall be unlawful for any person to enter this structure except for the purpose of making the required repairs" shall be posted at each entry to the structure.

105.6.2 Unsafe Structure: In the case of an unsafe structure, if the notice of violation is not complied with in the time given and the structure does not constitute an immediate danger to the life, limbs, property or safety of the public it shall be vacated, secured and maintained against entry. A placard with the wording "THIS STRUCTURE IS UNSAFE AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL – It shall be unlawful for any person to enter this structure except for the purpose of making the required repairs" shall be posted at each entry to the structure.

105.6.3 Unfit for human habitation: In the case of a structure unfit for human habitation, if the notice of violation is not complied with in the time given and the condition does not constitute an immediate danger to the life, limbs, property or safety of the public it shall be vacated, secured and maintained against entry. A placard with the wording "THIS STRUCTURE IS UNFIT FOR HUMAN HABITATION AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL –It shall be unlawful for any person to enter this structure except for the purpose of making the required repairs" shall be posted at each entry to the structure.

105.6.4 Unsafe equipment: In the case of unsafe equipment, if the notice of violation is not complied with in the time given, a placard with the wording "THIS UNIT IS UNSAFE AND ITS USE HAS BEEN PROHIBITED BY THE CODE OFFICIAL –It shall be unlawful for any person to operate this equipment except for the purpose of making the required repairs" shall be posted on the unit.

Supporting Statement: These proposed changes reflect consistency with the notice of violation and adds clarity. It will not increase the cost of compliance.

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>M-202</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
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<p>Submitted by: <u>Ralston McInnis</u></p> <p>Address: <u>400 Granby, Norfolk, VA 23510</u></p> <p>Regulation Title: <u>Definitions:</u></p>	<p>Representing: <u>VBCOA Property Maintenance Committee</u></p> <p>Phone No.: <u>(757) 664-6563</u></p> <p>Section No: <u>Section 202 Virginia Maintenance Code</u></p>
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Proposed Change:

~~Unsafe Structure: An existing structure (i) determined by the code official to be dangerous to the health, safety and welfare of the occupants of the structure or the public, (ii) that contains unsafe equipment, or (iii) that is so damaged, decayed, dilapidated, structurally unsafe or of such faulty construction or unstable foundation that partial or complete collapse is likely. A vacant existing structure unsecured or open shall be deemed to be an unsafe structure.~~

DANGEROUS BUILDING OR PREMISES For the purpose of this code, any building, structure or premises which has any or all of the conditions or defects hereinafter described shall be deemed to be a dangerous building, structure or premises, provided that such conditions or defects exist to the extent that life, health, property or safety of the public or its occupants are endangered.

1. Whenever any door, aisle, passageway, stairway, exit or other means of egress does not conform to the approved building or fire code of the jurisdiction as related to the requirements for existing buildings.
2. Whenever the walking surface of any aisle, passageway, stairway, exit or other means of egress is so warped, worn loose, torn or otherwise unsafe as to not provide safe and adequate means of egress.
3. Whenever any portion of a building, structure or appurtenance has been damaged by fire, earthquake, wind, flood, deterioration, neglect, abandonment, vandalism or by any other cause, to such an extent that it is likely to partially or completely collapse, or to become detached or dislodged.
4. Whenever any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof is not of sufficient strength or stability, or is not so anchored, attached or fastened in place so as to be capable of resisting natural or artificial loads of one and one half the original designed value.
5. The building or structure, or part of the building or structure, because of dilapidation, deterioration, decay, faulty construction, the removal or movement of some portion of the ground necessary for the support, or for other reason, is likely to partially or completely collapse, or some portion of the foundation or underpinning of the building or structure is likely to fail or give way.
6. Whenever, for any reason, the building or structure, or any portion thereof, is manifestly unsafe for its use and occupancy
7. The building or structure is neglected, damaged, dilapidated, unsecured or abandoned so as to become an attractive nuisance to children who might play in the building or structure to their danger, becomes a harbor for vagrants, criminals, or immoral persons, or enables persons to resort to the building or structure for committing a nuisance or an unlawful act.
8. Whenever any building or structure has been constructed, exists or is maintained in violation of any specific requirement or prohibition applicable to such building or structure provided by the approved building or fire code of the jurisdiction, or of any law or ordinance to such an extent as to present either a substantial risk of fire, building collapse or any other threat to life and safety.
9. Whenever a building or structure, used or intended to be used for dwelling purposes, because of inadequate maintenance, dilapidation, decay, damage, faulty construction or arrangement, inadequate light, ventilation, mechanical or plumbing system, or otherwise, is determined by the code official to be unsanitary, unfit for human habitation or in such a condition that is likely to cause sickness or disease.
10. Whenever any building or structure, because of a lack of sufficient or proper: fire-resistive construction, fire protection systems, electrical system, fuel connections, mechanical system, plumbing system or other cause, is determined by the code official to be a threat to life or health.
11. Whenever any portion of a building remains on a site after the demolition or destruction of the building or structure or whenever any building or structure is abandoned so as to constitute such building or portion thereof an attractive nuisance or hazard to the public.
12. For the purpose of this code, any building or structure which has any or all of the conditions or defects hereinafter described shall be deemed to be unsafe buildings, provided that such conditions or defects exist to the extent that life, health, property or safety of the public or its occupants are endangered.
13. An building that is vacant and unsecured, open to the public.

Supporting Statement: This code change expands the definition of a dangerous building or premises allows the Code Inspector to more accurately identify conditions within a building or structure that declare a building to be dangerous and unsafe.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Maintenance Code
Code Change No. M-302.2.1**

Nature of Change: (text is on code change form)

To add a requirement in the Virginia Maintenance Code prohibiting an owner from shutting off any utility service to an occupied dwelling, except for repairs or alterations.

Proponent: VBCOA Property Maintenance Committee

Staff Comments:

While recognizing that owners will have utilities shut off and then request that the maintenance code official declare a building as unfit for human habitation to, in effect, evict the tenants, the participants in the work groups considering this change noted concerns with attempting to address this issue in the Virginia Maintenance Code. It was also noted that the Virginia Landlord Tenant Act needed to be taken into consideration. As a result of the discussions, the code change did not receive consensus support through the workgroup process.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>M-301.2.1</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>Ralston W. McInnis</u> Representing: <u>Property Maintenance Committee</u></p> <p>Address: <u>400 Granby Street – Norfolk, VA 23510</u> Phone No.: <u>(757)664-6563</u></p> <p>Regulation Title: <u>Responsibility</u> Section No(s): <u>301.2</u></p>		
<p>Proposed Change:</p> <p>301.2 Responsibility.</p> <p>The owner of the premises shall maintain the structures and exterior property in compliance with these requirements, except as otherwise provided for in this code. A person shall not occupy as owner-occupant or permit another person to occupy premises which are not in a sanitary and safe condition and which do not comply with the requirements of this chapter. Occupants of a dwelling unit, rooming unit or housekeeping unit are responsible for keeping in a clean, sanitary and safe condition that part of the dwelling unit, rooming unit, housekeeping unit or premises which they occupy and control.</p> <p><u>301.2.1 Maintenance: No owner, operator or occupant shall cause any service, facility, equipment or utility which is required under this section to be removed, shut off, or discontinued from any occupied dwelling, except for such temporary interruption as necessary while repairs or alterations are in progress.</u></p>		

Supporting Statement: This change is submitted to enhance the enforcement of the protection of health, safety and welfare of the public. It will not increase the cost of compliance.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Maintenance Code
Code Change No. M-304.14**

Nature of Change: (text is on code change form)

To add language to the Virginia Maintenance Code to clarify that insects screens are not needed where mechanical ventilation is provided.

Proponent: Virginia Building and Code Officials Association (VBCOA)

Staff Comments:

The VBCOA Property Maintenance Committee submits this change to clarify an existing code provision. While the existing provision only requires insect screens where windows are required for ventilation, this can lead to debate concerning whether a mechanical ventilation system is taking the place of a natural ventilation system. This change specifically lists mechanical ventilation as an alternative to providing screens. The proposal was considered by Workgroup 2 and is recommended to move forward as a consensus change.

Staff notes that the code change shows the International Property Maintenance Code (IPMC) provision instead of the Virginia amendment to the provision, which provides the dates during which screens need to be provided and other minor differences. However, the proposed changes are only to the exception to the provision, which is the same in both the IPMC and the Virginia Maintenance Code.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>M-304.14</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p><u>Submitted by: Ralston McInnis</u> <u>Representing: VBCOA Property Maintenance Committee</u></p> <p><u>Address: 400 Granby, Norfolk, VA 23510</u> <u>Phone No.: (757) 664-6563</u></p> <p><u>Regulation Title: Insect Screens;</u> <u>Section No(s): Section 304.14 Virginia Maintenance Code</u></p>		
<p>Proposed Change:</p> <p>304.14 Insect screens. During the period from [DATE] to [DATE], every door, window and other outside opening required for ventilation of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored shall be supplied with approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm), and every screen door used for insect control shall have a self-closing device in good working condition.</p> <p>Exception: Screens shall not be required whether other approved means such as <u>mechanical ventilation</u>, air curtains or insect repellent fans are <u>employed used</u>.</p>		
<p>Supporting Statement:</p> <p>This proposed change in the 2006 IRC would</p>		

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**USBC – Virginia Maintenance Code
Code Change No. M-404.5**

Nature of Change: (text is on code change form)

To reinstate the minimum room area and number of occupants table which was in the 2003 International Property Maintenance Code (IPMC) and deleted in the 2006 edition.

Proponent: Virginia Building and Code Officials Association Property Maintenance Committee

Staff Comments:

Staff notes that the authority to use of the table in the 2003 IPMC is debated since it could be read as a retrofit provision. In other words, since the Virginia Construction Code does not specify the number of occupants permitted in a dwelling, the Virginia Maintenance Code cannot stipulate the number after the certificate of occupancy is issued. Now that the table is no longer in the IPMC, if it is added back in as a state amendment, it would be given the status of a valid provision, which would appear to be in conflict with the Virginia Construction Code. Staff suggests that if the table is to be added back into the IPMC as a state amendment, then it would be necessary to add a reference in the Virginia Construction Code's construction and retrofit provisions to the requirement, so that it could legitimately apply to all existing dwellings without a conflict being present. Staff would suggest language such as, "New and existing dwellings shall comply with the occupancy limitations stipulated in the Virginia Maintenance Code."

This code change was considered by Workgroup 2 and there was consensus to add the table back into the IPMC. However, there was not consensus on the proper way to do it and whether the references in the Virginia Construction Code were needed.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p>5/10/07</p>	<p>Document No. <u>m-404.5</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>Ralston W. McInnis</u> Representing: <u>VBCOA Property Maintenance Committee</u></p> <p>Address: <u>400 Granby Street – Norfolk, VA 23510</u> Phone No.: <u>(757) 664-6563</u></p> <p>Regulation Title: <u>Overcrowding</u> Section No(s): <u>404.5 (IPMC)</u></p>		

Proposed Change:

404.4.1 Room area. Every living room shall contain at least 120 square feet (11.2m²) and every bedroom shall contain at least 70 square feet (6.5m²)- and every bedroom occupied by more than one person shall contain at least 50 square feet (4.6m²) of floor area for each occupant thereof.

404.5 Overcrowding. ~~The number of persons occupying a dwelling unit shall not create conditions, that in the opinion of the code official, endangers the life, health, safety or welfare of the occupants.~~

404.5 Overcrowding. Dwelling units shall not be occupied by more occupants than permitted by the minimum area requirements of Table 404.5.

TABLE 404.5
MINIMUM AREA REQUIREMENTS

SPACE	MINIMUM AREA IN SQUARE FEET		
	1-2 OCCUPANTS	3-5 OCCUPANTS	6 OR MORE OCCUPANTS
Living room a,b	120	120	150
Dining room a,b	No requirement	80	100
Bedrooms	Shall comply with section 404.4.1		

For SI: 1square foot=0.093 m².

- a. See Section 404.5.2 for combined living room/dinning room spaces.
- b. See Section 404.5.1 for limitations on determining the minimum occupancy area for sleeping purposes.

404.5.1 Sleeping area. The minimum occupancy area required by Table 404.5 shall not be included as a sleeping area in determining the minimum occupancy area for sleeping purposes. All sleeping areas shall comply with Section 404.4.

404.5.2 Combined spaces. Combined living room and dining room spaces shall comply with the requirements of Table 404.5 if the total area is equal to that required for separate rooms and if the space is located so as to function as a combination living room/dining room.

Supporting Statement:

Language in the 2003 IRC Commentary suggests that "interior living conditions including odor, moisture and disease transmission" play a major role in interior living conditions. The Commentary further states that the "IRC regulates room sizes to assist in maintaining a safe and comfortable interior environment". The Commentary also states that not only is room size regulated but the number of occupants, ceiling height and ventilation all have an impact on the floor area of habitable spaces. This suggests that the intent of the IRC is to in some fashion regulate not only light and ventilation but occupant load also. The language contained in the 2006 version of the IPMC is both ambiguous and subjective rendering difficult to apply and impossible to enforce. The 2006 Edition fails to recognize the intent of the IRC to regulate occupant loads in residential structures. Therefore, this proposal is to retain the language contained in the subject sections the 2003 Edition of the IPMC in the administrative chapter of the Virginia Maintenance Code.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**Virginia Statewide Fire Prevention Code
Code Change No. F-105.1.2**

Nature of Change: (text is on code change form)

To add the State Fire Marshal's Office (SFMO) to the requirement in the Statewide Fire Prevention Code for notifying the Department when a new fire official is appointed.

Proponent: SFMO

Staff Comments:

This proposal is in anticipation of the SFMO moving from the Department of Housing and Community Development to the Department of Fire Programs, which is anticipated in July of 2008. This will have the appointment information coming to both the Department for certification purposes and to the SFMO for contact information. The proposal was reviewed by Workgroup 2 and is recommended to move forward as consensus.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 - 7150 Fax No. (804) 371 - 7092 Email: bhcd@dhcd.state.va.us</p>		<p>Document No. <u>F-105.1.2</u></p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
<p>Submitted by: <u>State Fire Marshal's Office (SFMO)</u> Representing: _____</p> <p>Address: _____ Phone No.: _____</p> <p>Regulation Title: <u>2006 Va. Statewide Fire Prevention Code</u> Section No(s): <u>105.1.2</u></p>		
<p>Proposed Change:</p> <p>105.1.2. Notification of appointment: The appointing authority of the local governing body shall notify the DHCD and the SFMO within 30 days of the appointment or release of the permanent or acting fire official.</p>		
<p>Supporting Statement:</p> <p>In light of an impending relocation of the SFMO to under the Secretary of Public Safety, this change is to ensure the SFMO is aware of local appointments in order to determine in which cities, counties or towns the SFMO has enforcement authority.</p> <p>Section 27-98 of the COV states the SFMO has authority to enforce the SFPC "in those jurisdictions in which the local governments do not enforce the Code."</p>		

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**Virginia Statewide Fire Prevention Code
Code Change Nos. F-107.2-a and F-107.2-b**

Nature of Changes: (text is on code change form)

To clarify the definitions of the terms “tents” and “canopies” and have canopies regulated under the Virginia Construction Code as they are typically associated with the building construction.

Proponent: Virginia Fire Services Board Code Committee and DHCD Staff

Staff Comments:

In the April 9, 2007 Stakeholder’s meeting, the issue of overlapping and differing regulations for tents and canopies was discussed and a staff proposal considered to attempt to align the permit exemptions under the Virginia Construction Code with the operational permit and construction permit provisions of the Virginia Statewide Fire Prevention Code (SFPC).

A more comprehensive proposal was developed through a joint fire services code change committee at the national level which also realigned the provisions for canopies to be regulated by the International Building Code and removed references to canopies from the International Fire Prevention Code. The Fire Services Board Code Committee (FSBCC) submits that proposal at the state level.

The staff proposal is the same as the FSBCC proposal in moving the regulation of canopies to the IBC, but adds a clarification to the definitions to prevent canopies from being considered tents. It differs from the FSBCC proposal in changing the thresholds for when a permit is needed in the SFPC to match the thresholds in the Virginia Construction Code.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM
 (Use this form to submit changes to building and fire codes)

Address to submit to: DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321 Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us	8/9/07	Document No. <u>F-107.2-a</u> Committee Action: _____ BHCD Action: _____
Submitted by: <u>Robby Dawson, Chair</u> Representing: <u>Virginia Fire Services Board Code Committee</u> Address: <u>1005 Technology Park Drive Glen Allen 23059</u> Phone No.: <u>804-717-6838</u> Regulation Title: <u>USBC and VFPC</u> Section No(s): <u>Numerous – See below</u>		

Proposed change:

Revise USBC Section 202 to read as follows:

CANOPY. An structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration, and may be structurally independent or and is supported by the attachment to a building to which it is attached and at the outer on one end by not less than one stanchion on the outer end. ~~A canopy is comprised of a rigid structure over which a covering is attached.~~

TENT. Any structure, enclosure or shelter, with or without sidewalls or drops, ~~which is constructed of eanvasfabric~~ or pliable material supported in any manner except by air or the contents it protects.

Revise SFPC Table 107.2 to read as follows:

Table 107.2
OPERATIONAL PERMIT REQUIREMENTS
(to be filled in by local jurisdiction)

Description	Permit Required (yes or no)	Permit fee	Inspection fee
Aerosol products. An operational permit is required to manufacture, store, or handle an aggregate quantity of Level 2 or Level 3 aerosol products in excess of 500 pounds (227 kg) net weight.			
Amusement buildings. An operational permit is required to operate a special amusement building.			
Aviation facilities. An operational permit is required to use a Group H or Group S occupancy for aircraft servicing or repair and aircraft fuel-servicing vehicles. Additional permits required by other sections of this code include, but are not limited to, hot work, hazardous materials and flammable or combustible finishes.			
Carnivals and fairs. An operational permit is required to conduct a carnival or fair.			
Battery systems. A permit is required to install stationary lead-acid battery systems having a liquid capacity of more than 50 gallons (189 L).			
Cellulose nitrate film. An operational permit is required to store, handle or use cellulose nitrate film in a Group A occupancy.			
Combustible dust-producing operations. An operational permit is required to operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other operations producing combustible dusts as defined in Chapter 2.			
Combustible fibers. An operational permit is required for the storage and handling of combustible fibers in quantities greater than 100 cubic feet (2.8 m ³). Exception: A permit is not required for agricultural storage.			
Compressed gases. Except for vehicles equipped for and using compressed gas as a fuel for propelling the vehicle, an operational permit is required for the storage, use or handling of compressed gases in excess of the amounts listed as follows:			
Type of gas	Amount (Cubic feet @ NTP)		
Corrosive	200		
Flammable (except cryogenic fluids and LPG)	200		
Highly toxic	Any amount		
Inert and simple asphyxiant	6,000		
Oxidizing (including oxygen)	504		
Toxic	Any amount		
Covered mall buildings. An operational permit is required for: 1. The placement of retail fixtures and displays, concession equipment, displays of highly combustible goods and similar items in the mall. 2. The display of liquid- or gas-fired equipment in the mall. 3. The use of open-flame or flame-producing equipment in the mall.			
Cryogenic fluids. An operational permit is required to produce, store, transport on site, use, handle or dispense cryogenic fluids in excess of the amounts listed below. Exception: Operational permits are not required for vehicles equipped for and using cryogenic fluids as a fuel for propelling the vehicle or for refrigerating the lading.			

Type of Cryogenic Fluid	Inside Building (gallons)	Outside Building (gallons)			
Flammable	More than 1	60			
Inert	60	500			
Oxidizing (includes oxygen)	10	50			
Physical or health hazard not indicated above	Any amount	Any amount			
For SI: 1 gallon = 3.785 L.					
Cutting and welding. An operational permit is required to conduct cutting or welding operations within the jurisdiction.					
Dry cleaning plants. An operational permit is required to engage in the business of dry cleaning or to change to a more hazardous cleaning solvent used in existing dry cleaning equipment.					
Exhibits and trade shows. An operational permit is required to operate exhibits and trade shows.					
Explosives. An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of explosive, explosive material, fireworks, or pyrotechnic special effects within the scope of Chapter 33.					
Fire hydrants and valves. An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes which are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public. Exception: An operational permit is not required for authorized employees of the water company that supplies the system or the fire department to use or operate fire hydrants or valves.					
Flammable and combustible liquids. An operational permit is required: 1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOTn) (see Section 3501.1.2) nor does it apply to piping systems (see Section 3503.6). 2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following: 2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the code official, would cause an unsafe condition. 2.2. The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days. 3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for fuel oil used in connection with oil-burning equipment. 4. To remove Class I or Class II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes. 5. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used. 6. To install, alter, remove, abandon, place temporarily out of service (for more than 90 days) or otherwise dispose of an					

underground, protected above-ground or above-ground flammable or combustible liquid tank.			
7. To change the type of contents stored in a flammable or combustible liquid tank to a material which poses a greater hazard than that for which the tank was designed and constructed.			
8. To manufacture, process, blend or refine flammable or combustible liquids.			
Floor finishing. An operational permit is required for floor finishing or surfacing operations exceeding 350 square feet (33 m ²) using Class I or Class II liquids.			
Fruit and crop ripening. An operational permit is required to operate a fruit-, or crop-ripening facility or conduct a fruit-ripening process using ethylene gas.			
Fumigation and thermal insecticidal fogging. An operational permit is required to operate a business of fumigation or thermal insecticidal fogging and to maintain a room, vault or chamber in which a toxic or flammable fumigant is used.			
Hazardous materials. An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the following amounts:			
Type of material	Amount		
Combustible liquids	See Flammable and Combustible Liquids		
Corrosive materials	See Compressed Gases		
Gases	55 gallons		
Liquids	1000 pounds		
Solids			
Explosive materials	See Explosives		
Flammable materials	See Compressed Gases		
Gases	See Flammable and Combustible Liquids		
Liquids	100 pounds		
Solids			
Highly toxic materials	See Compressed Gases		
Gases	Any amount		
Liquids	Any amount		
Solids	Any amount		
Oxidizing materials	See Compressed Gases		
Gases	Any amount		
Liquids	1 gallon		
Class 4	10 gallons		
Class 3	55 gallons		
Class 2			
Class 1			
Solids	Any amount		
Class 4	10 pounds		
Class 3	100 pounds		
Class 2	500 pounds		
Class 1			
Organic peroxides			
Liquids	Any amount		
Class I	Any amount		
Class II	1 gallon		
Class III	2 gallons		
Class IV	No permit required		
Class V			
Solids	Any amount		
Class I	Any amount		
Class II	10 pounds		
Class III	20 pounds		
Class IV	No permit required		
Class V			
Pyrophoric materials	See Compressed Gases		
Gases	Any amount		
Liquids	Any amount		
Solids	Any amount		

<p>Toxic materials</p> <p>Gases</p> <p>Liquids</p> <p>Solids</p>	<p>See Compressed Gases</p> <p>10 gallons</p> <p>100 pounds</p>			
<p>Unstable (reactive) materials</p> <p>Liquids</p> <p>Class 4</p> <p>Class 3</p> <p>Class 2</p> <p>Class 1</p> <p>Solids</p> <p>Class 4</p> <p>Class 3</p> <p>Class 2</p> <p>Class 1</p>	<p>Any amount</p> <p>Any amount</p> <p>5 gallons</p> <p>10 gallons</p> <p>Any amount</p> <p>Any amount</p> <p>50 pounds</p> <p>100 pounds</p>			
<p>Water-reactive Materials</p> <p>Liquids</p> <p>Class 3</p> <p>Class 2</p> <p>Class 1</p> <p>Solids</p> <p>Class 3</p> <p>Class 2</p> <p>Class 1</p>	<p>Any amount</p> <p>5 gallons</p> <p>55 gallons</p> <p>Any amount</p> <p>50 pounds</p> <p>500 pounds</p>			
<p>HPM facilities. An operational permit is required to store, handle or use hazardous production materials.</p>				
<p>High-piled storage. An operational permit is required to use a building or portion thereof as a high-piled storage area exceeding 500 square feet (46 m²).</p>				
<p>Hot work operations. An operational permit is required for hot work including, but not limited to:</p> <ol style="list-style-type: none"> 1. Public exhibitions and demonstrations where hot work is conducted. 2. Use of portable hot work equipment inside a structure. <p>Exception: Work that is conducted under a construction permit.</p> <ol style="list-style-type: none"> 3. Fixed-site hot work equipment such as welding booths. 4. Hot work conducted within a hazardous fire area. 5. Application of roof coverings with the use of an open-flame device. 6. When approved, the code official shall issue a permit to carry out a Hot Work Program. This program allows approved personnel to regulate their facility's hot work operations. The approved personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in this chapter. These permits shall be issued only to their employees or hot work operations under their supervision. 				
<p>Industrial ovens. An operational permit is required for operation of industrial ovens regulated by Chapter 21.</p>				
<p>Lumber yards and woodworking plants. An operational permit is required for the storage or processing of lumber exceeding 100,000 board feet (8,333 ft³) (236 m³).</p>				
<p>Liquid- or gas-fueled vehicles or equipment in assembly buildings. An operational permit is required to display, operate or demonstrate liquid- or gas-fueled vehicles or equipment in assembly buildings.</p>				
<p>LP-gas. An operational permit is required for:</p> <ol style="list-style-type: none"> 1. Storage and use of LP-gas. <p>Exception: An operational permit is not required for individual containers with a 500-gallon (1893 L) water capacity or less serving occupancies in Group R-3.</p> <ol style="list-style-type: none"> 2. Operation of cargo tankers that transport LP-gas. 				
<p>Magnesium. An operational permit is required to melt, cast, heat treat or grind more than 10 pounds (4.54 kg) of magnesium.</p>				
<p>Miscellaneous combustible storage. An operational permit is</p>				

required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m ³) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, rubber, cork or similar combustible material.			
Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be adhered to. Exception: Recreational fires.			
Open flames and candles. An operational permit is required to remove paint with a torch; use a torch or open-flame device in a hazardous fire area; or to use open flames or candles in connection with assembly areas, dining areas of restaurants or drinking establishments.			
Organic coatings. An operational permit is required for any organic-coating manufacturing operation producing more than 1 gallon (4 L) of an organic coating in one day.			
Assembly/educational. An operational permit is required to operate a place of assembly/educational occupancy.			
Private fire hydrants. An operational permit is required for the removal from service, use or operation of private fire hydrants. Exception: An operational permit is not required for private industry with trained maintenance personnel, private fire brigade or fire departments that maintain, test and use private hydrants.			
Pyrotechnic special effects material. An operational permit is required for use and handling of pyrotechnic special effects material.			
Pyroxylin plastics. An operational permit is required for storage or handling of more than 25 pounds (11 kg) of cellulose nitrate (pyroxylin) plastics and for the assembly or manufacture of articles involving pyroxylin plastics.			
Refrigeration equipment. An operational permit is required to operate a mechanical refrigeration unit or system regulated by Chapter 6.			
Repair garages and service stations. An operational permit is required for operation of repair garages and automotive, marine and fleet service stations.			
Rooftop heliports. An operational permit is required for the operation of a rooftop heliport.			
Spraying or dipping. An operational permit is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids or the application of combustible powders regulated by Chapter 15.			
Storage of scrap tires and tire byproducts. An operational permit is required to establish, conduct or maintain storage of scrap tires and tire byproducts that exceeds 2,500 cubic feet (71 m ³) of total volume of scrap tires and for indoor storage of tires and tire byproducts.			
Temporary membrane structures and, tents and canopies. An operational permit is required to operate an air-supported temporary membrane structure or a tent <u>having an area in excess of 400 square feet (74m²).</u> Exceptions: 1. Tents used exclusively for recreational camping purposes. 2. Tents, <u>with sidewalls or drops on 75 percent or more of the perimeter</u> , and air-supported structures that cover an area of 900700 400 square feet (84m ²) or less, including all connecting areas or spaces with a common means of egress or entrance and with an occupant load of 50 or less persons. 3. Fabric canopies Tents and awnings open on all sides which comply with all of the following:			

<p>3.1. Individual canopiestents shall have a maximum size of 700400 square feet (65 m²).</p> <p>3.2. The aggregate area of multiple placed side by side without a fire break clearance of 12 feet (3658 mm) shall not exceed 700400square feet (65 m²) total.</p> <p>3.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.</p>			
Tire-rebuilding plants. An operational permit is required for the operation and maintenance of a tire-rebuilding plant.			
Waste handling. An operational permit is required for the operation of wrecking yards, junk yards and waste material-handling facilities.			
Wood products. An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m ³).			

Revise SFPC Section 108.5.12 to read as follows:

108.5.12 Temporary membrane structures, and tents~~and canopies~~. A construction permit is required to erect an air-supported temporary membrane structure or a tent having an area in excess of 900 square feet (84 m²), ~~or a canopy in excess of 700 square feet (65 m²).~~

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Tents and air-supported structures that cover an area of 900 square feet (84 m²) or less, including all connecting areas or spaces with a common means of egress or entrance and with an occupant load of 50 or less persons.
3. Funeral tents and curtains or extensions attached thereto, when used for funeral services.
4. ~~Fabric canopies~~Tents and awnings open on all sides which comply with all of the following:
 - 4.1. Individual ~~canopies~~tents shall have a maximum size of 700 square feet (65 m²).
 - 4.2. The aggregate area of multiple ~~canopies~~tents placed side by side without a fire break clearance of 12 feet shall not exceed 700 square feet (65 m²) total.
 - 4.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be maintained.

Revise Section 202 definition as follows:

CANOPY. ~~See Section 2402.1~~ A structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration, and may be structurally independent or supported by attachment to a building and on one end by not less than one stanchion on the outer end.

Revise Chapter 24 as follows:

Chapter 24

TENTS, CANOPIES AND OTHER MEMBRANE STRUCTURES

Section 2401

General

2401.1 Scope. Tents, ~~canopies~~ and membrane structures shall comply with this chapter. The provisions of Section 2403 are applicable only to temporary membrane structures. The provisions of Section 2404 are applicable to temporary and permanent membrane structures.

Section 2402

Definitions

2402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AIR-SUPPORTED STRUCTURE. A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area.

CANOPY. ~~A structure, enclosure or shelter constructed of fabric or pliable materials supported by any manner, except by air or the contents it protects, and is open without sidewalls or drops on 75 percent or more of the perimeter.~~

MEMBRANE STRUCTURE. An air-inflated, air-supported, cable or frame-covered structure as defined by the *International Building Code* and not otherwise defined as a tent or canopy. See Chapter 31 of the *International Building Code*.

TENT. A structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable material supported by any manner except by air or the contents that it protects.

SECTION 2403

TEMPORARY TENTS, ~~CANOPIES~~ AND MEMBRANE STRUCTURES

2403.1 General. All temporary tents, ~~canopies~~ and membrane structures shall comply with this section.

2403.2 Approval required. Tents and membrane structures having an area in excess of 200 square feet (19 m²) ~~and canopies in excess of 400 square feet (37 m²)~~ shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the fire code official.

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. ~~Fabric canopies~~ Tents open on all sides which comply with all of the following:
 - 2.1. Individual ~~canopies~~ tents having a maximum size of 700 square feet (65 m²).
 - 2.2. The aggregate area of multiple ~~canopies~~ tents placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m²) total.
 - 2.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

2403.3 Place of assembly. For the purposes of this chapter, a place of assembly shall include a circus, carnival, tent show, theater, skating rink, dance hall or other place of assembly in or under which persons gather for any purpose.

2403.4 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

2403.5 Use period. Temporary tents, air-supported, air-inflated or tensioned membrane structures ~~and canopies~~ shall not be erected for a period of more than 180 days within a 12-month period on a single premises.

2403.6 Construction documents. A detailed site and floor plan for tents, ~~canopies~~ or membrane structures with an occupant load of 50 or more shall be provided with each application for approval. The tent, ~~canopy~~ or membrane structure floor plan shall indicate details of the means of egress facilities, seating capacity, arrangement of the seating and location and type of heating and electrical equipment.

2403.7 Inspections. The entire tent, air-supported, air-inflated or tensioned membrane structure system shall be inspected at regular intervals, but not less than two times per permit use period, by the permittee, owner or agent to determine that the installation is maintained in accordance with this chapter.

Exception: Permit use periods of less than 30 days.

2403.7.1 Inspection report. When required by the fire code official, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

2403.8 Access, location and parking. Access location and parking for temporary tents, ~~canopies~~ and membrane structures shall be in accordance with this section.

2403.8.1 Access. Fire apparatus access roads shall be provided in accordance with Section 503.

2403.8.2 Location. Tents, ~~canopies~~ or membrane structures shall not be located within 20 feet (6096 mm) of lot lines, buildings, other tents, ~~canopies~~ or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure, ~~or tent or canopy~~.

Exceptions:

1. Separation distance between membrane structures, and tents and canopies not used for cooking, is not required when the aggregate floor area does not exceed 15,000 square feet (1394 m²).
2. Membrane structures, or tents or canopies need not be separated from buildings when all of the following conditions are met:
 - 2.1. The aggregate floor area of the membrane structure, or tent or canopy shall not exceed 10,000 square feet (929 m²).

2.2. The aggregate floor area of the building and membrane structure, ~~or tent or canopy~~ shall not exceed the allowable floor area including increases as indicated in the *International Building Code*.

2.3. Required means of egress provisions are provided for both the building and the membrane structure, ~~or tent or canopy~~ including travel distances.

2.4. Fire apparatus access roads are provided in accordance with Section 503.

2403.8.3 Location of structures in excess of 15,000 square feet in area. Membrane structures having an area of 15,000 square feet (1394 m²) or more shall be located not less than 50 feet (15 240 mm) from any other tent or structure as measured from the sidewall of the tent or membrane structure unless joined together by a corridor.

2403.8.4 Connecting corridors. Tents or membrane structures are allowed to be joined together by means of corridors. Exit doors shall be provided at each end of such corridor. On each side of such corridor and approximately opposite each other, there shall be provided openings not less than 12 feet (3658 mm) wide.

2403.8.5 Fire break. An unobstructed fire break passageway or fire road not less than 12 feet (3658 mm) wide and free from guy ropes or other obstructions shall be maintained on all sides of all tents, ~~canopies~~ and membrane structures unless otherwise approved by the fire code official.

2403.9 Anchorage required. Tents, ~~canopies~~ or membrane structures and their appurtenances shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. Documentation of structural stability shall be furnished to the fire code official on request.

2403.10 Temporary air-supported and air-inflated membrane structures. Temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 2403.10.1 through 2403.10.4.

2403.10.1 Door operation. During high winds exceeding 50 miles per hour (22 m/s) or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open.

2403.10.2 Fabric envelope design and construction. Air-supported and air-inflated structures shall have the design and construction of the fabric envelope and the method of anchoring in accordance with Architectural Fabric Structures Institute ASI 77.

2403.10.3 Blowers. An air-supported structure used as a place of assembly shall be furnished with not less than two blowers, each of which has adequate capacity to maintain full inflation pressure with normal leakage. The design of the blower shall be so as to provide integral limiting pressure at the design pressure specified by the manufacturer.

2403.10.4 Auxiliary power. Places of public assembly for more than 200 persons shall be furnished with either a fully automatic auxiliary engine-generator set capable of powering one blower continuously for 4 hours, or a supplementary blower powered by an internal combustion engine which shall be automatic in operation.

2403.11 Seating arrangements. Seating in tents, ~~canopies~~ or membrane structures shall be in accordance with Chapter 10.

2403.12 Means of egress. Means of egress for temporary tents, ~~canopies~~ and membrane structures shall be in accordance with Sections 2403.12.1 through 2403.12.8.

2403.12.1 Distribution. Exits shall be spaced at approximately equal intervals around the perimeter of the tent, canopy or membrane structure, and shall be located such that all points are 100 feet (30 480 mm) or less from an exit.

2403.12.2 Number. Tents, canopies or membrane structures or a usable portion thereof shall have at least one exit and not less than the number of exits required by Table 2403.12.2. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by a means of egress multiplied by 0.2 inches (5 mm) per person.

TABLE 2403.12.2
MINIMUM NUMBER OF MEANS OF EGRESS AND MEANS OF
EGRESS WIDTHS FROM TEMPORARY MEMBRANE
STRUCTURES, AND TENTS AND CANOPIES

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)	
		Tent or Canopy	Membrane Structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000 ^a	7	120	96

For SI: 1 inch = 25.4 mm.

a. When the occupant load exceeds 3,000, the total width of means of egress (in inches) shall not be less than the total occupant load multiplied by 0.2 inches per person.

2403.12.3 Exit openings from tents. Exit openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches (2032 mm) above the floor level at the exit. The curtains shall be so arranged that, when open, no part of the curtain obstructs the exit.
2. Curtains shall be of a color, or colors, that contrasts with the color of the tent.

2403.12.4 Doors. Exit doors shall swing in the direction of exit travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds (66 N).

2403.12.5 Aisle. The width of aisles without fixed seating shall be in accordance with the following:

1. In areas serving employees only, the minimum aisle width shall be 24 inches (610 mm) but not less than the width required by the number of employees served.
2. In public areas, smooth-surfaced, unobstructed aisles having a minimum width of not less than 44 inches (1118 mm) shall be provided from seating areas, and aisles shall be progressively increased in width to provide, at all points, not less than 1 foot (305 mm) of aisle width for each 50 persons served by such aisle at that point.

2403.12.5.1 Arrangement and maintenance. The arrangement of aisles shall be subject to approval by the fire code official and shall be maintained clear at all times during occupancy.

2403.12.6 Exit signs. Exits shall be clearly marked. Exit signs shall be installed at required exit doorways and where otherwise necessary to indicate clearly the direction of egress when the exit serves an occupant load of 50 or more.

2403.12.6.1 Exit sign illumination. Exit signs shall be of an approved self-luminous type or shall be internally or externally illuminated by luminaires supplied in the following manner:

1. Two separate circuits, one of which shall be separate from all other circuits, for occupant loads of 300 or less; or
2. Two separate sources of power, one of which shall be an approved emergency system, shall be provided when the occupant load exceeds 300. Emergency systems shall be supplied from storage batteries or from the on-site generator set, and the system shall be installed in accordance with the ICC *Electrical Code*.

2403.12.7 Means of egress illumination. Means of egress shall be illuminated with light having an intensity of not less than 1 foot-candle (11 lux) at floor level while the structure is occupied. Fixtures required for means of egress illumination shall be supplied from a separate circuit or source of power.

2403.12.8 Maintenance of means of egress. The required width of exits, aisles and passageways shall be maintained at all times to a public way. Guy wires, guy ropes and other support members shall not cross a means of egress at a height of less than 8 feet (2438 mm). The surface of means of egress shall be maintained in an approved manner.

SECTION 2404 TEMPORARY AND PERMANENT TENTS, CANOPIES AND MEMBRANE STRUCTURES

2404.1 General. All tents, canopies and membrane structures, both temporary and permanent, shall be in accordance with this section. Permanent tents, canopies and membrane structures shall also comply with the *International Building Code*.

2404.2 Flame propagation performance treatment. Before a permit is granted, the owner or agent shall file with the fire code official a certificate executed by an approved testing laboratory certifying that the tents, canopies and membrane structures and their appurtenances; sidewalls, drops and tarpaulins; floor coverings, bunting and combustible decorative materials and effects, including sawdust when used on floors or passageways, shall be composed of material meeting the flame propagation performance criteria of NFPA 701 or shall be treated with a flame retardant in an approved manner and meet the flame propagation performance criteria of NFPA 701, and that such flame propagation performance criteria are effective for the period specified by the permit.

2404.3 Label. Membrane structures, or tents or canopies shall have a permanently affixed label bearing the identification of size and fabric or material type.

2404.4 Certification. An affidavit or affirmation shall be submitted to the fire code official and a copy retained on the premises on which the tent or air-supported structure is located. The affidavit shall attest to the following information relative to the flame propagation performance criteria of the fabric:

1. Names and address of the owners of the tent, canopy or air-supported structure.
2. Date the fabric was last treated with flame-retardant solution.
3. Trade name or kind of chemical used in treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

2404.5 Combustible materials. Hay, straw, shavings or similar combustible materials shall not be located within any tent, canopy or membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance or exhibit shall not be prohibited provided the sawdust and shavings are kept damp. Combustible materials shall not be permitted under stands or seats at any time. The areas within and adjacent to the tent or air-supported structure shall be maintained clear of all combustible materials or vegetation that could create a fire hazard within 20 feet (6096 mm) of the structure. Combustible trash shall be removed at least once a day from the structure during the period the structure is occupied by the public.

- 2404.6 Smoking.** Smoking shall not be permitted in tents, canopies or membrane structures. Approved "No Smoking" signs shall be conspicuously posted in accordance with Section 310.
- 2404.7 Open or exposed flame.** Open flame or other devices emitting flame, fire or heat or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be permitted inside or located within 20 feet (6096 mm) of the tent, canopy or membrane structures while open to the public unless approved by the fire code official.
- 2404.8 Fireworks.** Fireworks shall not be used within 100 feet (30 480 mm) of tents, canopies or membrane structures.
- 2404.9 Spot lighting.** Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with approved noncombustible insulation not less than 9.25 inches (235 mm) thick.
- 2404.10 Safety film.** Motion pictures shall not be displayed in tents, canopies or membrane structures unless the motion picture film is safety film.
- 2404.11 Clearance.** There shall be a minimum clearance of at least 3 feet (914 mm) between the fabric envelope and all contents located inside the tent or membrane structure.
- 2404.12 Portable fire extinguishers.** Portable fire extinguishers shall be provided as required by Section 906.
- 2404.13 Fire protection equipment.** Fire hose lines, water supplies and other auxiliary fire equipment shall be maintained at the site in such numbers and sizes as required by the fire code official.
- 2404.14 Occupant load factors.** The occupant load allowed in an assembly structure, or portion thereof, shall be determined in accordance with Chapter 10.
- 2404.15 Heating and cooking equipment.** Heating and cooking equipment shall be in accordance with Sections 2404.15.1 through 2404.15.7.
- 2404.15.1 Installation.** Heating or cooking equipment, tanks, piping, hoses, fittings, valves, tubing and other related components shall be installed as specified in the *International Mechanical Code* and the *International Fuel Gas Code*, and shall be approved by the fire code official.
- 2404.15.2 Venting.** Gas, liquid and solid fuel-burning equipment designed to be vented shall be vented to the outside air as specified in the *International Fuel Gas Code* and the *International Mechanical Code*. Such vents shall be equipped with approved spark arresters when required. Where vents or flues are used, all portions of the tent, canopy or membrane structure shall be not less than 12 inches (305 mm) from the flue or vent.
- 2404.15.3 Location.** Cooking and heating equipment shall not be located within 10 feet (3048 mm) of exits or combustible materials.
- 2404.15.4 Operations.** Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables, butane or other similar devices which do not pose an ignition hazard, shall be approved.
- 2404.15.5 Cooking tents.** Tents where cooking is performed shall be separated from other tents, canopies or membrane structures by a minimum of 20 feet (6096 mm).
- 2404.15.6 Outdoor cooking.** Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet (6096 mm) of a tent, canopy or membrane structure.
- 2404.15.7 Electrical heating and cooking equipment.** Electrical cooking and heating equipment shall comply with the ICC *Electrical Code*.
- 2404.16 LP-gas.** The storage, handling and use of LP-gas and LP-gas equipment shall be in accordance with Sections 2406.16.1 through 2404.16.3.
- 2404.16.1 General.** LP-gas equipment such as tanks, piping, hoses, fittings, valves, tubing and other related components shall be approved and in accordance with Chapter 38 and with the *International Fuel Gas Code*.
- 2404.16.2 Location of containers.** LP-gas containers shall be located outside. Safety release valves shall be pointed away from the tent, canopy or membrane structure.
- 2404.16.2.1 Containers 500 gallons or less.** Portable LP-gas containers with a capacity of 500 gallons (1893 L) or less shall have a minimum separation between the container and structure not less than 10 feet (3048 mm).
- 2404.16.2.2 Containers more than 500 gallons.** Portable LP-gas containers with a capacity of more than 500 gallons (1893 L) shall have a minimum separation between the container and structures not less than 25 feet (7620 mm).
- 2404.16.3 Protection and security.** Portable LP-gas containers, piping, valves and fittings which are located outside and are being used to fuel equipment inside a tent, canopy or membrane structure shall be adequately protected to prevent tampering, damage by vehicles or other hazards and shall be located in an approved location. Portable LP-gas containers shall be securely fastened in place to prevent unauthorized movement.
- 2404.17 Flammable and combustible liquids.** The storage of flammable and combustible liquids and the use of flammable-liquid-fueled equipment shall be in accordance with Sections 2404.17.1 through 2404.17.3.
- 2404.17.1 Use.** Flammable-liquid-fueled equipment shall not be used in tents, canopies or membrane structures.
- 2404.17.2 Flammable and combustible liquid storage.** Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet (15 240 mm) from tents, canopies or membrane structures. Storage shall be in accordance with Chapter 34.
- 2404.17.3 Refueling.** Refueling shall be performed in an approved location not less than 20 feet (6096 mm) from tents, canopies or membrane structures.
- 2404.18 Display of motor vehicles.** Liquid- and gas-fueled vehicles and equipment used for display within tents, canopies or membrane structures shall be in accordance with Sections 2404.18.1 through 2404.18.5.3.

2404.18.1 Batteries. Batteries shall be disconnected in an appropriate manner.

2404.18.2 Fuel systems. Vehicles or equipment shall not be fueled or defueled within the tent, ~~canopy~~ or membrane structure.

2404.18.2.1 Quantity limit. Fuel in the fuel tank shall not exceed one-quarter of the tank capacity or 5 gallons (19 L), whichever is less.

2404.18.2.2 Inspection. Fuel systems shall be inspected for leaks.

2404.18.2.3 Closure. Fuel tank openings shall be locked and sealed to prevent the escape of vapors.

2404.18.3 Location. The location of vehicles or equipment shall not obstruct means of egress.

2404.18.4 Places of assembly. When a compressed natural gas (CNG) or liquefied petroleum gas (LP-gas) powered vehicle is parked inside a place of assembly, all the following conditions shall be met:

1. The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG or LP-gas container shall be closed and the engine shall be operated until it stops. Valves shall remain closed while the vehicle is indoors.
2. The hot lead of the battery shall be disconnected.
3. Dual-fuel vehicles equipped to operate on gasoline and CNG or LP-gas shall comply with this section and Sections 2404.18.1 through 2404.18.5.3 for gasoline- powered vehicles.

2404.18.5 Competitions and demonstrations. Liquid and gas-fueled vehicles and equipment used for competition or demonstration within a tent, ~~canopy~~ or membrane structure shall comply with Sections 2404.18.5.1 through 2404.18.5.3.

2404.18.5.1 Fuel storage. Fuel for vehicles or equipment shall be stored in approved containers in an approved location outside of the structure in accordance with Section 2404.17.2.

2404.18.5.2 Fueling. Refueling shall be performed outside of the structure in accordance with Section 2404.17.3.

2404.18.5.3 Spills. Fuel spills shall be cleaned up immediately.

2404.19 Separation of generators. Generators and other internal combustion power sources shall be separated from tents, ~~canopies~~ or membrane structures by a minimum of 20 feet (6096 mm) and shall be isolated from contact with the public by fencing, enclosure or other approved means.

2404.20 Standby personnel. When, in the opinion of the fire code official, it is essential for public safety in a tent, ~~canopy~~ or membrane structure used as a place of assembly or any other use where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall employ one or more qualified persons, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted. Before each performance or the start of such activity, standby personnel shall keep diligent watch for fires during the time such place is open to the public or such activity is being conducted and take prompt measures for extinguishment of fires that occur and assist in the evacuation of the public from the structure. There shall be trained crowd managers or crowd manager supervisors at a ratio of one crowd manager/supervisor for every 250 occupants, as approved.

2404.21 Vegetation removal. Combustible vegetation shall be removed from the area occupied by a tent, ~~canopy~~ or membrane structure, and from areas within 30 feet (9144 mm) of such structures.

2404.22 Waste material. The floor surface inside tents, ~~canopies~~ or membrane structures and the grounds outside and within a 30-foot (9144 mm) perimeter shall be kept clear of combustible waste. Such waste shall be stored in approved containers until removed from the premises.

Supporting statement:

General:

The pivot point of the proposed changes affecting tents and canopies is the major difference the way “tents” and “canopies” are defined between the building and fire codes. If it’s agreed the difference is significant and the two codes need to be correlated, the majority of changes needed are to be made to the fire code.

With some minor differences in the respective wording, a tent is a tent in either code. But that’s not the case with canopies.

To date, the building code definition of a canopy has been broad and general enough to encompass most everything thought of in the vernacular, be it a covered walkway or the structure that stands over fuel dispensing islands.

Definitions:

The proposed change to the definition of canopy in both codes is to ensure what’s being described still includes everything previously thought of in the vernacular but to the exclusion of the fire code’s current definition of a canopy which is essentially a tent without sidewalls. Therefore, the definition of canopy is proposed for deletion and relocation in the fire code so as to cover the multiple applications currently found in the code.

By example, while the current definition of canopy in the fire code is found in Chapter 24 Tents, Canopies and Other Membrane Structures, the context and application of a canopy is totally out sync with how canopies are addressed in Chapter 22, Motor Fuel-

Dispensing Facilities and Repair Garages. Unlike the temporary nature of tents and canopies in an unchanged Chapter 24, in Chapter 22, canopies are basically independent structures with some permanence expected. In addition, the building code uses the fire code as a reference for the design and construction of canopies at fueling stations. (See USBC [IBC] Sections 406.5.2, 406.5.2.1 and 2606.10.) By redefining canopies as proposed and locating the revised definition in Chapter 2, it will apply to all sections of the code where canopies are addressed.

Permits and permit threshold:

If a locality opts to require permits as provided for in Section 107.2, the change to SFPC Table 107.2 is for operational permits only and does not have effect or bearing on when a USBC construction permit is required. The permit threshold level is proposed for change to the lowest common denominator within the section itself evening out the permit threshold. This can be viewed as aid in the administration and application of the section and is particularly important as it relates to the use of open or exposed flames (Sec. 2404.7), Spot lighting (Sec. 2404.9), heating/cooking equipment and cooking operations (Sec. 2404.15), the use of LP-gas (Sec. 2404.16), the storage of flammable and combustible liquids along with the use of flammable-liquid-fueled equipment (Sec. 2404.17), display of motor vehicles (Sec. 2404.18).

In addition, using the current fire code definitions of tents and canopies, it lacks logic to set a permit threshold for a tent having sidewalls or drops at 900 sq. ft. but a lesser threshold at 700 sq. ft. for what amounts to a tent without sidewalls or drops. The following photographs help illustrate the discrepancy:

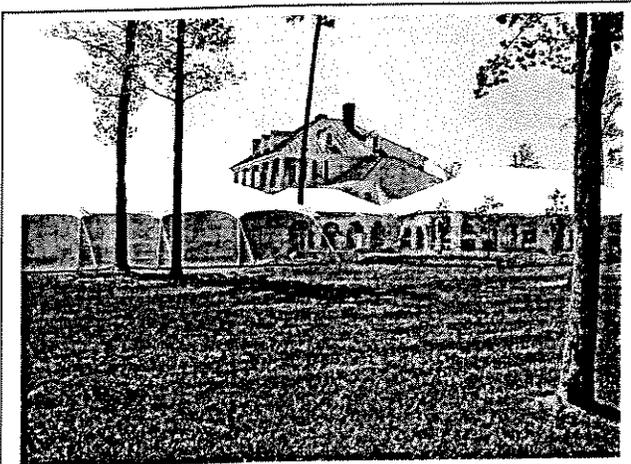


Photo 1 Example of a tent using the current USBC and SFPC definitions.

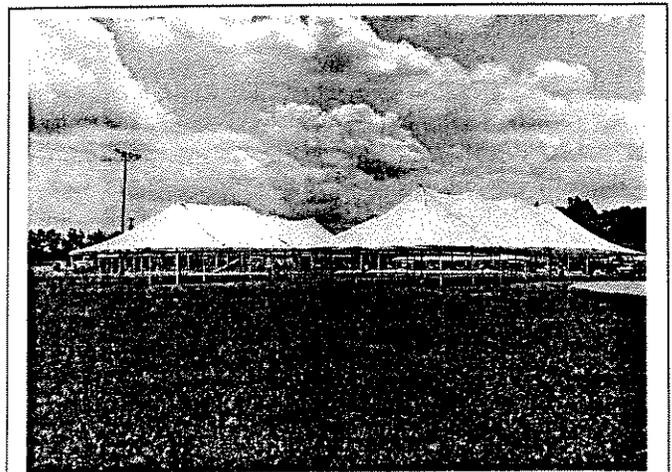


Photo 2 Using the current definitions, example of a USBC tent and a SFPC canopy.

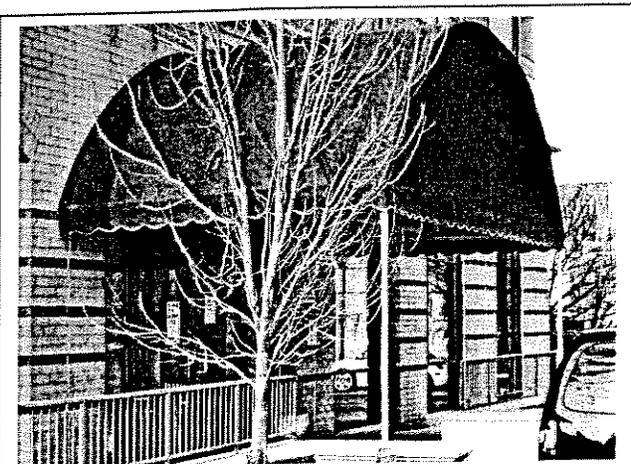


Photo 3 Example of a canopy using the current USBC definition.



Photo 4 Example of a canopy that fits the current USBC definition and not the SFPC definition, but is addressed as a canopy in SFPC Chapter 22 for fuel dispensing islands.

The thought is that a tent with sidewalls poses a greater challenge to exiting than a tent (canopy) without sidewalls. In concert with the revised definitions, using the lesser square footage for the permit thresholds, regardless of sidewalls, negates the present illogical values.

(Note: While it's not the purpose of this proposed change to affect the building code, an inconsistency must be pointed out. In building code section 108.2, *"tents or air-supported structures, or both, that cover an area of 900 square feet (84 m²) or less, including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant load of 50 or less persons"* are exempt from getting a permit. The fire code expresses a different construction permit level by some additional qualifying language by exempting tents for recreational camping purposes, funeral tents, and an aggregate area for multiple tents. This does not comport with the building code. A separate yet-to-be-written building code should be considered to rectify the difference in the way the codes agree.)

A grammatical correction for the word "premise" is also proposed for the end of Section 2403.5.

Code side-by-side comparison:

Attached is a comparison of the building and fire code to help illustrate the need to revise and correlate the definitions of tents and canopies, and how the technical applications of the codes get applied.

**VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CODE CHANGE FORM**

Address to submit to: DHCD, The Jackson Center 501 North Second Street Richmond, VA 23219-1321 Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.virginia.gov		Document No. <u>F-107.2-b</u> Committee Action: _____ BHCD Action: _____
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Submitted by: Staff, Technical Services Assistance Office (TASO), DBFR, DHCD

Regulation Title: USBC and SFPC Section No(s): 202, 108.2, 107.2, 108.5.12, Chapter 24

Proposed Change:

1) Change the definition of tent and canopy in the IBC, in the IFC as a reference standard under the IBC and in the IFC as a referenced standard under the SFPC to read in final version as follows:

Canopy. A structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration and may be structurally independent or supported by attachment to a building on one end by not less than one stanchion on the outer end.

Tent. Any structure, enclosure or shelter, other than a canopy, with or without sidewalls or drops constructed of fabric or pliable material supported in any manner except by air or the contents it protects.

2) Change Section 108.2(4) of the USBC (Permit exemptions) to read as follows:

4. Tents or air-supported structures, or both, that cover an area of less than 900 square feet ... provided such tents or structures have an occupant load of 50 or less persons and tents used exclusively for recreational camping .

3) Change the “Temporary membrane structures, tents and canopies” section of Table 107.2 of the SFPC (Operational Permits) to read in final version as follows:

Membrane structures, air-supported structures and tents. An operational permit is required to operate all membrane structures or any tent or air-supported structure that covers an area of greater than 900 square feet (84 m²), including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant

load of greater than 50 persons. Tents used exclusively for recreational camping shall not be required to obtain an operational permit.

4) Change Section 108.5.12 of the SFPC (Construction Permits) to read in final version as follows:

108.5.12 Membrane structures, air-supported structures and tents. A construction permit is required to erect all membrane structures or any tent or air-supported structure that covers an area of greater than 900 square feet (84 m²), including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant load of greater than 50 persons. Tents used exclusively for recreational camping shall not be required to obtain a construction permit.

5) Delete all references to canopies in Chapter 24 of the IFC as a referenced standard under the SFPC.

Supporting Statement:

This staff change is an attempt to correlate the USBC and the SFPC concerning the permit thresholds for the erection and use of tents and air-supported structures. The change further adds clearer definitions of tents and canopies in conjunction with having canopies regulated exclusively under the USBC as they are defined to be associated with buildings.

A similar code change was submitted by the Fire Services Board Code Committee, however, it did not align the permit thresholds between the USBC and the SFPC. Staff did not have enough time to bring this change to the Code Committee to see if it accomplishes the goals of their code change as well as correlating the permit thresholds in both codes.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

2006 Code Change Cycle – Code Change Evaluation Form

**Virginia Statewide Fire Prevention Code
Code Change No. F-107.11**

Nature of Change: (text is on code change form)

To add criteria to use in a determination of whether to revoke an operational permit, including repeat offences.

Proponent: City of Richmond

Staff Comments:

The participants in the work groups considering this change noted concerns with the enforceability aspects of the change and questioned the legality of consideration of past offences in denying an operational permit if the code was otherwise complied with. As a result of the discussions, the code change did not receive consensus support through the workgroup process.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

Commonwealth of Virginia, Housing & Community Development Department
REGULATORY CHANGE FORM (to submit changes to building and fire codes)

Submit to: DHCD, the Jackson Center, 501 North Second Street, Richmond, VA 23219-1321
Tel. No. (804) 371 – 7150, Fax No. (804) 371 – 7092, E-mail: bhcd@dhcd.state.va.us

Ref. Document No. F-107.11 Committee Action: _____
BHCD Action: _____

Regulation Title: Statewide Fire Prevention Code

Section No(s): 107.11 and 108.4

Submitted by: William Andrews

Representing: City of Richmond's Fire Prevention Office

Address: 550 East Marshall Street, Room 202, Richmond, Virginia 23219

Phone No.: (804) 646-0621 E-mail: William.Andrews@RichmondGov.com

Proposed Changes: Add to Section 107.11 to read: "Revocation of permit: The fire official may revoke, or suspend, a permit or approval issued under the SFPC if conditions of the permit have been violated, or if the approved application, data or plans contain misrepresentation as to material fact, repeated minor accidents, or a hazardous incident results in damages and response of emergency crews. The fire official may deny issuance of another permit where applicant has history of unsafe activities.

Add to Section 108.4, to read: "The fire official is authorized to revoke, or suspend, an operational permit"

" 8. Repeated accidents involving permit activity, or a hazardous incident resulting in damages and response of emergency crews. "

The fire official may deny issuance of a permit where applicant has history of unsafe activity.

Supporting Statement: Current code lacks provisions for revoking, suspending, or denying a permit despite repeated accidents which endanger workers, property, or emergency crews. Although no violation of code exist, the fire official needs clear authority to suspend or revoke permits to avoid repeated accidents. Fire official should be allowed to temporarily "suspend" permit while additional safety procedures are implemented, errors in application are corrected, or other minor concerns resolved. Without such authority in state code, defense attorneys might successfully argue the "Dillion Rule" limited fire officials from adopting local procedures for such revoking or suspension of these permits. Above referenced section numbers from 2003 VSFPC; recommend these changes be made in 2006 VSFPC; and suggest combine the two sections which both specify revoking permits.

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

**Virginia Statewide Fire Prevention Code
Code Change No. F-110.1**

Nature of Change: (text is on code change form)

To add definitions of "Wildland-Urban Interface Area" and "Wildland" to the Statewide Fire Prevention Code (SFPC) and modify two existing SFPC provisions to use an evaluation tool developed by the Virginia Department of Forestry in determining whether vegetation needs to be removed or cut back to achieve compliance with the code in wildland-urban interface areas.

Proponent: Virginia Fire Services Board

Staff Comments:

A workgroup was established to consider this issue, which was first presented as a code change to use the International Code Council's International Wildland-Urban Interface Code (WUIC) as part of the SFPC. In consideration of input from the workgroup, the Virginia Department of Forestry (DOF), the Fire Services Board Code Committee and other client groups, the code change was modified to only use definitions from the WUIC and to add provisions to the SFPC to reference and use an evaluation developed by DOF to determine whether property within wildland-urban interface areas complies with the SFPC. The workgroup considered the new code change at its last meeting and there is general consensus that it move forward.

Staff suggests several editorial modifications to the change to make the language clearer. Condition #1 of Section 110.1 is suggested to read as follows in final form:

1. Dangerous conditions which are liable to cause or contribute to the spread of fire in or on said premises, building or structure, or to endanger the occupants thereof. Conditions related to vegetation shall comply with Section 304.1.2.

Section 304.1.2 of the IFC is suggested to read as follows in final form:

304.1.2 Vegetation. Weeds, grass, vines or other growth that is capable of being ignited and endangering property, shall be cut down and removed by the owner or occupant of the premises. Vegetation clearance requirements in wildland-urban interface areas shall be evaluated in accordance with Form 181 (2003) of the Virginia Department of Forestry and a hazard rating of below the extreme risk category shall be maintained.

Codes and Standards Committee Action:

_____ Approve as presented.

_____ Disapprove.

_____ Approve as modified (specify):

_____ Carry over to next cycle.

_____ Other (specify):

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT REGULATORY CHANGE FORM

(Use this form to submit changes to building and fire codes)

<p>Address to submit to:</p> <p>DHCD, the Jackson Center 501 North Second Street Richmond, VA 23219-1321</p> <p>Tel. No. (804) 371 – 7150 Fax No. (804) 371 – 7092 Email: bhcd@dhcd.state.va.us</p>	<p style="text-align: center;">8/28/07</p>	<p>Document No. _____</p> <p>Committee Action: _____</p> <p>BHCD Action: _____</p>
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Submitted by: Dennis Mitchell _____ Representing: ___ Fire Services Board

Address: ___ 512 Redbud Lane_ Bluemont VA 20135 _____

Phone No.: _703-777-0219 _____

Regulation Title: _Statewide Fire Prevention Code _____ Section No(s): 110.1 #1 and 304.1.2

Proposed Change: Add to section 110.1

1. Dangerous conditions which are liable to cause or contribute to the spread of fire in or on said premises, building or structure, or to endanger the occupants thereof. Conditions related to vegetation and are determined to be extreme in accordance with section 304.1.2 shall be considered unsafe.

Add definitions to chapter 3

Wildland-Urban Interface Area That geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

Wildland An area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities.

Change section 304.1.2

Vegetation evaluation in Wildland-Urban Interface Areas shall be in accordance with Form 181-2003 of the Virginia Department of Forestry.

Supporting Statement: There has been more structural fire loss from wild land fires east of the Mississippi river than west. The provisions in the IWUIC are meant to reduce the risk of damage to structures due to fire. By changing 304.1.2 to reference the Virginia Department of Forestry and their evaluation process, there will be a consistent and uniform process to evaluate dangerous conditions. This proposed change is not intended to be used in other than an interface area.

Form 181
06/01/2003

VIRGINIA DEPARTMENT OF FORESTRY

WILDLAND URBAN INTERFACE FIRE PROTECTION PROGRAM

WOODLAND HOME WILDFIRE HAZARD ASSESSMENT

Homeowner Name(s): _____

Location: _____

Tax Map Id.: _____

Latitude: _____ Longitude: _____

Fire Department Jurisdiction: _____

No. Acres: _____ Date Evaluated: _____

CALCULATING THE WILDFIRE HAZARD RATING

SITE HAZARD RATING	+	STRUCTURE HAZARD RATING	-	HAZARD MITIGATION HAZARD RATING	=	OVERALL WILDFIRE HAZARD RATING
	+		-		=	

SITE HAZARD RATING:	Rating	
SURROUNDING TREES: How many and what type trees are next to your home?		
Select the ONE which best describes the type of trees surrounding your home to use for rating your home's fire risk (do not rate on all three).	Hardwoods (trees with leaves) No trees within 30 feet: 0 10 trees within 30 feet: 2 10-20 trees within 30 feet: 3 20+ trees within 30 feet: 4	
	Conifers (trees with needles) No trees within 30 feet: 0 10 trees within 30 feet: 3 10-20 trees within 30 feet: 6 20+ trees within 30 feet: 10	
	Mixed Hardwoods and Conifers No trees within 30 feet: 0 10 trees within 30 feet: 3 10-20 trees within 30 feet: 4 20+ trees within 30 feet: 6	
	Ladder Fuels (underbrush and low branches) No: 0 Yes: 5	
	TYPE OF GROUND COVER: What is the primary type of ground cover within 30 feet of the structure?	
	Sand, Gravel, etc (Non-combustible): 0 Grasses up to 6" tall: 2 Grasses 6"-12" tall: 4 Grasses greater than 12" tall: 6 Shrubs with leaves: 3 Shrubs with needles: 5	
	FIREWOOD OR FUEL STORAGE: Where are firewood or fuel storage such as propane or oil tanks stored?	
	None: 0 Located 0 to 3 feet from structure: 5 Located 3' to 30' from structure: 3 Located more than 30 feet from structure: 1	

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06/01/2003

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VIRGINIA DEPARTMENT OF FORESTRY
WILDLAND URBAN INTERFACE FIRE PROTECTION PROGRAM
WOODLAND HOME WILDFIRE HAZARD ASSESSMENT

BRUSH PILES: Where are brush piles located on your property?		
None	0	
Located 0 to 3 feet from structure	6	
Located 3' to 30' from structure	3	
Located more than 30 feet from structure	2	
FLAMMABLE MATERIALS STORAGE: Where are flammable materials such as gas cans, paint, etc. stored?		
None	0	
Located 0 to 3 feet from structure	3	
Located 3' to 30' from structure	2	
Located more than 30 feet from structure	1	
OPEN BURNING: Do you practice open burning on your property site?		
Yes	3	
No	0	
OUTBUILDINGS: Do you have outbuildings within 20 feet of your home structure?		
Yes	3	
No	0	
TOTAL SITE HAZARD RATING		

STRUCTURE HAZARD RATING:	Rating	
ROOFING MATERIALS: What materials were used for the roof of your home?		
Metal or Tile	0	
Asphalt Shingles or Rolled Roofing	3	
Wood (cedar shingles)	6	
FOUNDATION: What type of foundation does your home have?		
Enclosed (Fireproof, i.e., concrete, metal)	0	
Enclosed with wood sheeting	3	
Open	5	
EXTERIOR WALL MATERIALS: What are the exterior walls of your home made of?		
Brick, Stone or Metal	0	
Vinyl or Wood	4	
DECKS OR OVERHANGS: Do you have decks or overhangs?		
Yes	4	
No	0	
TOTAL STRUCTURE HAZARD RATING		

HAZARD MITIGATION (REDUCTION) FACTORS: (choose all that apply)	Rating	
SITE		
Trees pruned up to 6 feet within 30 feet of your home	-2	
Lot cleared of brush within 30 feet of your home	-2	
Grass kept watered and short within 30 feet of your home	-2	
Leaves/Needles raked within 30 feet of your home	-2	
3 feet of gravel or non-flammable material adjacent to structure	-1	
STRUCTURE		
Regularly cleaned roof	-2	
Non-flammable skirting on decks	-2	
Clear of flammable material against structure (firewood etc)	-1	

Form 181
06/01/2003

VIRGINIA DEPARTMENT OF FORESTRY
WILDLAND URBAN INTERFACE FIRE PROTECTION PROGRAM
WOODLAND HOME WILDFIRE HAZARD ASSESSMENT

Page 3

OTHER		
Useable water supply nearby	-1	
Fire fighting equipment available (hose, ladder, shovel, rake etc)	-1	
Telephone or radio available to call for help	-1	
Knowledge of phone number to call to report a fire	-1	
Burn barrel/incinerator to standard	-1	
Outbuildings hazard-free	-2	
TOTAL HAZARD MITIGATION (REDUCTION) FACTORS		

What does the Wildfire Hazard Rating number mean?

Using the Wildfire Hazard Assessment, the highest possible rating is 60 points. Woodland homes can be divided into the following four risk categories:

- Low Risk:** **Total Wildfire Risk Rating is 0 - 10 points**
The chances of your home surviving a wildfire are **GOOD**. Little is needed to improve your situation. Keep up the good work!
- Moderate Risk:** **Total Wildfire Risk Rating is 11 - 20 points**
The chances of your home surviving a wildfire are **FAIR**. Some Minor improvements will make your home more fire resistant. Check the areas on the form in which you scored poorly.
- High Risk:** **Total Wildfire Risk Rating is 21 - 40 points**
The chances of your home surviving a wildfire are **NOT GOOD**. Improvements are necessary. Some improvements in structure and site are necessary.
- Extreme Risk:** **Total Wildfire Risk Rating is Over 40 points**
Your home **MAY NOT SURVIVE** if a wildfire passes through the area. In fact, a fire could even start on your property. Take a serious look at your property and make improvements. If you don't, you may be facing disaster. You'll find that even small changes could make the difference between losing or saving your home.

HAZARD is defined as the potential fire behavior based on physical fuel characteristics.

RISK is defined as the probability of fire occurrence determined by the number, presence and activity of potential ignition sources.

This form may be used to evaluate your individual home and determine the level of wildfire risk. It covers roughly one-half of the hazards normally taken into account in calculating fire risk, but does provide an approximate indication of true risk. For more information on your home's fire risk, or for a more complete evaluation of your property, contact your local Department of Forestry office.