MEMORANDUM

To: NFPA Technical Committee on Fire Code (FCC-AAA)

From: Gregory Harrington, Staff Liaison

Date: February 7, 2012

Subject: NFPA 1 Proposed Tentative Interim Amendment (TIA) No.1045

The attached proposed Tentative Interim Amendment (TIA) is being submitted to you for letter ballot. This proposed TIA was submitted by John Devlin, Greenbelt, MD and endorsed by Carl Baldassarra, Chicago, IL.

This proposed TIA will be published for public comment in the February 10, 2012 issue of NFPA News with a Public Comment Closing Date of March 23, 2012. Any public comments received will be circulated to the committee. The Standards Council will consider the issuance of this TIA at their August 7-9, 2012 meeting.

In addition to being balloted on the technical merits of the proposed TIA, the Committee is also being balloted on whether or not this matter is of an emergency nature. Please see Section 5 (copy enclosed) regarding the processing of TIAs from the NFPA Regulations Governing Committee Projects.

Please complete and return your ballot as soon as possible but no later than Friday, February 24, 2012. As noted on the ballot form, please return the ballot to Diane Matthews either via e-mail to dmatthews@nfpa.org or via fax to 617-984-7110. You may also mail your ballot to the attention of Diane Matthews at NFPA, 1 Batterymarch Park, Quincy, MA 02169.

Note: Please remember that the return of ballots and attendance at committee meetings are required in accordance with the NFPA Regulations Governing Committee Projects.

Attachments
TECHNICAL COMMITTEE LETTER BALLOT
PROPOSED TENTATIVE INTERIM AMENDMENT LOG NO. 1045
To Revise 18.4.5.2 and add a new 18.4.5.2.3 in the 2012 Edition of NFPA 1, Fire Code

Question 1: I agree with the TECHNICAL MERITS of the Proposed TIA to revise 18.4.5.2 and add a new 18.4.5.2.3.

__________ AGREE ____________ DISAGREE* ____________ ABSTAIN*

EXPLANATION OF VOTE - Please type or print your comments:

*An explanation must accompany a disagreement or abstaining position.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Question 2: I agree that the subject is of an EMERGENCY NATURE.

__________ AGREE ____________ DISAGREE* ____________ ABSTAIN*

EXPLANATION OF VOTE - Please type or print your comments:

*An explanation must accompany a disagreement or abstaining position.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

_____________________________________________________________________

Signature

_____________________________________________________________________

Name (Please Print)

_____________________________________________________________________

Date

Please return the ballot on or before **Friday, February 24, 2012**

PLEASE RETURN TO:
Diane Matthews, Administrator, Technical Projects
NFPA
1 Batterymarch Park
Quincy, MA 02169

FAX: (617) 984-7110  E-mail: dmatthews@nfpa.org
1. Revise 18.4.5.2 and add a new 18.4.5.2.3 to read as follows:

18.4.5.2 Buildings Other Than One- and Two-Family Dwellings. The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table 18.4.5.1.2 and as modified by 18.4.5.2.1 through 18.4.5.2.3.

18.4.5.2.1 Required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system. The resulting fire flow shall not be less than 1000 gpm (3785 L/min).

18.4.5.2.2 Required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system, which utilizes quick response sprinklers throughout. The resulting fire flow shall not be less than 600 gpm (2270 L/min).

18.4.5.2.3 Required fire flow for open parking structures that are not protected throughout by an approved automatic sprinkler system shall be reduced by 75 percent where all of the following conditions are met:
1. The open parking structure shall comply with NFPA 5000, Building Construction and Safety Code.
2. The open parking structure shall be of Type I or Type II construction.
3. The resulting fire flow shall not be less than 1000 gpm (3785 L/min).

Submitter’s Substantiation: Section 18.4.5’s fire flow requirements for buildings is based upon a correlation of the Insurance Service Organization (ISO) Guidelines and first appeared in NFPA 1 in the Annex of the 2003 edition. The requirements were then moved to Section 18.4.5 during the 2006 to 2009 revision. The ISO method focuses only on a building’s construction type and size, disregarding its use and anticipated fire load and fire hazards. The fire flow calculations obtained by Table 18.4.5.2 assume complete building fire involvement.

Applying NFPA 1 Table 18.4.5.2 to a typical open parking structure – e.g., 8-levels; 166,000 square feet; and sized to accommodate approximately 420 automobiles, which is quite common in urban and suburban communities – requires a fire flow of 5,750 GPM for a duration of 4 hours. To put this into perspective, Table 18.4.5.2 assumes if hose lines are used to extinguish the fire, then a total of 23 2½-inch diameter hose lines, each flowing 250 gpm, are required. This means more than 20 fire department pumpers – assuming a manning level of four firefighters per pumper – would be necessary to extinguish a fire in an open parking structure using hose lines. This supposition is contrary to fire statistics, full-scale fire test results, and other NFPA standards.

Compliance with Table 18.4.5.2 for a non-sprinklered open parking structure is unreasonable and problematic because a fire flow quantity of this magnitude requires substantial underground water main distribution infrastructure that is often not readily available in many suburban and urban communities. NFPA standards applicable to open parking structures do not require the installation of automatic sprinklers, since it is known a relatively low fire hazard exists in open parking structures and a limited number of vehicles will ultimately be involved in fire should the fire spread beyond the vehicle of fire origin.

Supporting Rationale: NFPA 88A, Standard for Parking Structures, 2011 edition, does not require automatic sprinklers in open parking structures of Type I and Type II construction. Accordingly, NFPA 101, Life Safety Code, 2012 edition; and NFPA 5000, Building Construction and Safety Code, 2012 edition also do not require automatic sprinklers in open parking structures. This includes multi-level structures of Type II (000) construction up to 75 feet (25m) in height. NFPA 88A, NFPA 101, NFPA 5000, and ICC International Building Code and its legacy codes all recognize a fire in a non-sprinklered open parking structure will not consume/involve more vehicles than that which could be reasonably extinguished with a few hose lines by the fire department. This is supported by full-scale fire test data and decades of fire incident data that has shown an automobile fire in an open parking structure is typically limited to the area of origin and few adjacent vehicles. These fire tests and fire incident data demonstrate:
• Smoke and heat from a vehicle fire in an open parking structure vents to the outdoors, preventing the accumulation of smoke and hot gases. The results are ceiling temperatures in the area of the vehicle fire that are significantly lower than that of a fire in an enclosed parking structure or space, and the fire is not expected to spread beyond the vehicle of origin and the two or more adjacent vehicles, if the fire spreads at all.\(^1,2\)

• The fire spreads to a limited number of adjacent vehicles beyond the vehicle of fire origin. Denda’s study “Parking Garage Fires: A Statistical Analysis of Parking Garage Fires in the United States” analyzing fire data and supports the conclusion of the 1970s full-scale fire tests. This study analyzed the occurrence of fire spread in vehicle fires and revealed that of the 257 documented cases; only 8 percent had fire spread from one vehicle to another. The majority of cases where the fire spread were caused by arson and consisted of large fires in enclosed spaces not open parking garages.\(^3\)

NFPA 1 – 2012, Section 18.4.5.2, does not recognize the relatively low fire hazard of open parking structures; fire statistics and full-scale fire test data that shows automobile fires in open parking structures remain localized to the vehicle of fire origin and few adjacent vehicles; that NFPA 88A, NFPA 101, NFPA 5000, and the ICC International Building Code consider the fire hazard of open parking structures as being low, therefore allowing multi-level, unlimited area open parking structures without automatic sprinklers.

The 75-percent reduction in calculated fire flow, but not less than 1,000 gpm proposed in Section 18.4.5.2.3 correlates to the requisite fire flow for a sprinklered open parking structure. A fire flow rate of 1,000 gpm is sufficient to support four 2½-inch diameter fire hose lines, flowing 250 gpm each. This is a reasonable correlation when considering that NFPA 88A, full-scale fire test results, and fire incident data that shows fires in open parking structures involves a limited number of vehicles that could be extinguished with two or less 2½-inch diameter hose lines.

**Emergency Nature:** This issue meets factor (f) defined by NFPA in Section 5.3 of the Regulations Governing Committee Projects since Section 18.4.5.2 presents an unnecessary hardship for open parking garages.

\(^1\) Gage-Babcock & Associates, Inc, Automobile Burn-out Tests in an Open Parking Structure, Scranton, PA, 1972
Section 5 Tentative Interim Amendments.

5.1 Preliminary Determination of Compliance. A Tentative Interim Amendment (TIA) to any Document may be processed if the Council Secretary determines, after a preliminary review, and consultation with the appropriate Chair, that the Amendment appears to be of an emergency nature requiring prompt action and has the endorsement of at least two Members of the involved TC or TCC. If processed, the question of emergency nature shall be considered by the TC and TCC. The text of a proposed Tentative Interim Amendment may be processed as submitted or may be changed, but only with the approval of the submitter.

5.2 Evaluation of Emergency Nature. Determination of an emergency nature shall include but not be limited to one or more of the following factors:
   (a) The document contains an error or an omission that was overlooked during a regular revision process.
   (b) The document contains a conflict within the document or with another NFPA document.
   (c) The proposed TIA intends to correct a previously unknown existing hazard.
   (d) The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.
   (e) The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.
   (f) The proposed TIA intends to correct a circumstance in which the revised document has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process, or was without adequate technical (safety) justification for the action.

5.3 Publication of Proposed Tentative Interim Amendment. A proposed Tentative Interim Amendment that meets the provisions of 5.1 shall be published by the Association in appropriate media with a notice that the proposed Tentative Interim Amendment has been forwarded to the responsible TC and TCC for processing and that anyone interested may comment on the proposed Tentative Interim Amendment within the time period established and published.

5.4 Technical Committee and Technical Correlating Committee Action.
   (a) The proposed Tentative Interim Amendment shall be submitted for ballot and comment of the TC in accordance with 3.3.4. The TC shall be separately balloted on both the technical merits of the amendment and whether the amendment involves an issue of an emergency nature. Such balloting shall be completed concurrently with the public review period. Any public comments inconsistent with the vote of any TC Member shall be circulated to the TC to allow votes to be changed. A recommendation for approval shall be established if three-fourths of the voting Members calculated in accordance with 3.3.4.5 have voted in favor of the Tentative Interim Amendment.
   (b) The proposed Tentative Interim Amendment shall be submitted for ballot and comment of the TCC, if any, which shall make a recommendation to the Council with respect to the disposition of the Tentative Interim Amendment. The TCC shall be separately balloted on both the merits of the amendment (as it relates to the TCC authority and responsibilities in accordance with 3.4.2 and 3.4.3) and whether the amendment involves an issue of an emergency nature. Any public comments inconsistent with the vote of any TC or TCC Member shall be circulated to the TC to allow votes to be changed. A recommendation for approval shall be established if three-fourths of the voting Members calculated in accordance with 3.3.4.5 have voted in favor of the Tentative Interim Amendment.
   (c) All public comments, ballots, and comments on ballot on the proposed Tentative Interim Amendment shall be summarized in a staff report and forwarded to the Council for action in accordance with 5.5.

5.5 Action of the Council. The Council shall review the material submitted in accordance with 5.4(c), together with the record on any Appeals (see 1.6, 1.6.1), and shall take one of the following actions:
   (a) Issue the proposed Tentative Interim Amendment
   (b) Issue the proposed Tentative Interim Amendment as amended by the Council
   (c) Where acted on concurrently with the issuance of a new edition of the Document to which it relates, issue the Tentative Interim Amendment as part of the new edition;
   (d) Reject the proposed Tentative Interim Amendment
   (e) Return the proposed Tentative Interim Amendment to the TC with appropriate instruction
   (f) Direct a different action

5.6 Effective Date of Amendment. Tentative Interim Amendments shall become effective 20 days after Council issuance unless the President determines, within his or her discretion, that the effective date shall be delayed pending the consideration of a Petition to the Board of Directors (see 1.7). The President may also, within his or her discretion, refer the matter of a delay in the effective date of the TIA to the Executive Committee of the Board of Directors or to the Board of Directors.

5.7 Publication of Amendment. The Association shall publish in one of its publications sent or accessible to all Members notice of the issuance of each Tentative Interim Amendment and may, as appropriate, issue a news release to applicable and interested technical journals. The notice and any news release shall indicate the tentative character of the Tentative Interim Amendment. In any subsequent distribution of the Document to which the Tentative Interim Amendment applies, the text of the Tentative Interim Amendment shall be included in a manner judged most feasible to accomplish the desired objectives.

5.8 Applicability. Tentative Interim Amendments shall apply to the document existing at the time of issuance. Tentative Interim Amendments issued after the proposal closing date shall also apply, where the text of the existing document remains unchanged, to the next edition of the Document. Tentative Interim Amendments issued concurrently with the issuance of a new edition shall apply to both the existing and new edition.

5.9 Subsequent Processing. TC responsible for the Document or part of the Document affected shall process the subject matter of any Tentative Interim Amendment as a proposal for the next edition of the Document (see 3.3).

5.10 Exception. When the Council authorizes other procedures for the processing and/or issuance of Tentative Interim Amendments, the provisions of this Section shall not apply.
Subject: RE: Tentative Interim Amendment -- NFPA 1

Amy-
Indeed, I support this TIA submittal as a co-sponsor.

Carl

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Carl F. Baldassarre, P.E., FSFPE
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From: John Devlin [mailto:john.devlin@aon.com]
Sent: Tuesday, December 20, 2011 3:34 PM
To: Amy Beasley Cronin (acronin@nfpa.org); Greg Harrington (charrington@nfpa.org)
Cc: Baldassarre, Carl; Matt Shanks (mshanks@rockvillemd.gov); Edward Mullaney; Tony Greenberg; Moriel Kaplan
Subject: Tentative Interim Amendment -- NFPA 1

Amy, please find attached TIA submission for NFPA 1. I am a principal member of NFPA 1 Technical Committee. Carl Baldassarre, also a principal member of the NFPA 1 technical committee, is co-sponsor. Carl will send you by separate email his concurrence/support for this TIA.

Best regards,

John

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