

Technical Committee on Electronic Computer Systems

MEMORANDUM

DATE: June 28, 2010

TO: Principal and Alternate Members of the Technical Committee on Electronic Computer Systems

FROM: Jonathan Levin, Associate Fire Protection Engineer/NFPA Staff Liaison

SUBJECT: **AGENDA PACKAGE – NFPA 75 F2011 ROP Meeting**

Enclosed is the agenda for the Report on Proposals (ROP) meeting for NFPA 75, *Standard for the Protection of Information Technology Equipment*. It is imperative that you review the attached proposals in advance, and if you have alternate suggestions, please come prepared with proposed language and respective substantiation. Also, should you have any proposals that were not submitted as public proposals but would like for them to be discussed as potential committee proposals, please send them to me by July 8, 2010 if possible.

For administrative questions, please feel free to Contact Patti Mucci at (617) 984-7948. For technical questions, please feel free to contact me at (617) 984-7245. You can also reach me via e-mail at JLevin@nfpa.org. I look forward to meeting everyone in Chicago, Illinois at Rolf Jensen & Associates' Headquarters.

Table of Contents

Meeting Agenda	3
Walking Directions From Hotel	7
Committee Distribution	12
F2007 ROC Meeting Minutes	14
F2011 Key Dates	18
Staff Liaison Notice	19
Public Proposals	25

Technical Committee on Electronic Computer Systems

ROP Meeting

July 13 – 14, 2010

Rolf Jensen & Associates

600 West Fulton Street

Suite 500

Chicago, Illinois 60661

AGENDA

Tuesday, July 13, 2010

1. Call to Order – 8:00 AM
2. Introductions
3. Committee Member Status and Update of Membership Roster
4. Review of Proposed Agenda
5. NFPA Staff Liaison Presentation and Review of Key Dates in F2011 Cycle
6. Chairman Comments
7. Approval of A2008 ROC Meeting Minutes
8. New Technology Presentation and Discussion (30 minutes maximum)
9. Act on Public Proposals
10. Adjourn – 5:00 PM

Wednesday, July 14, 2010

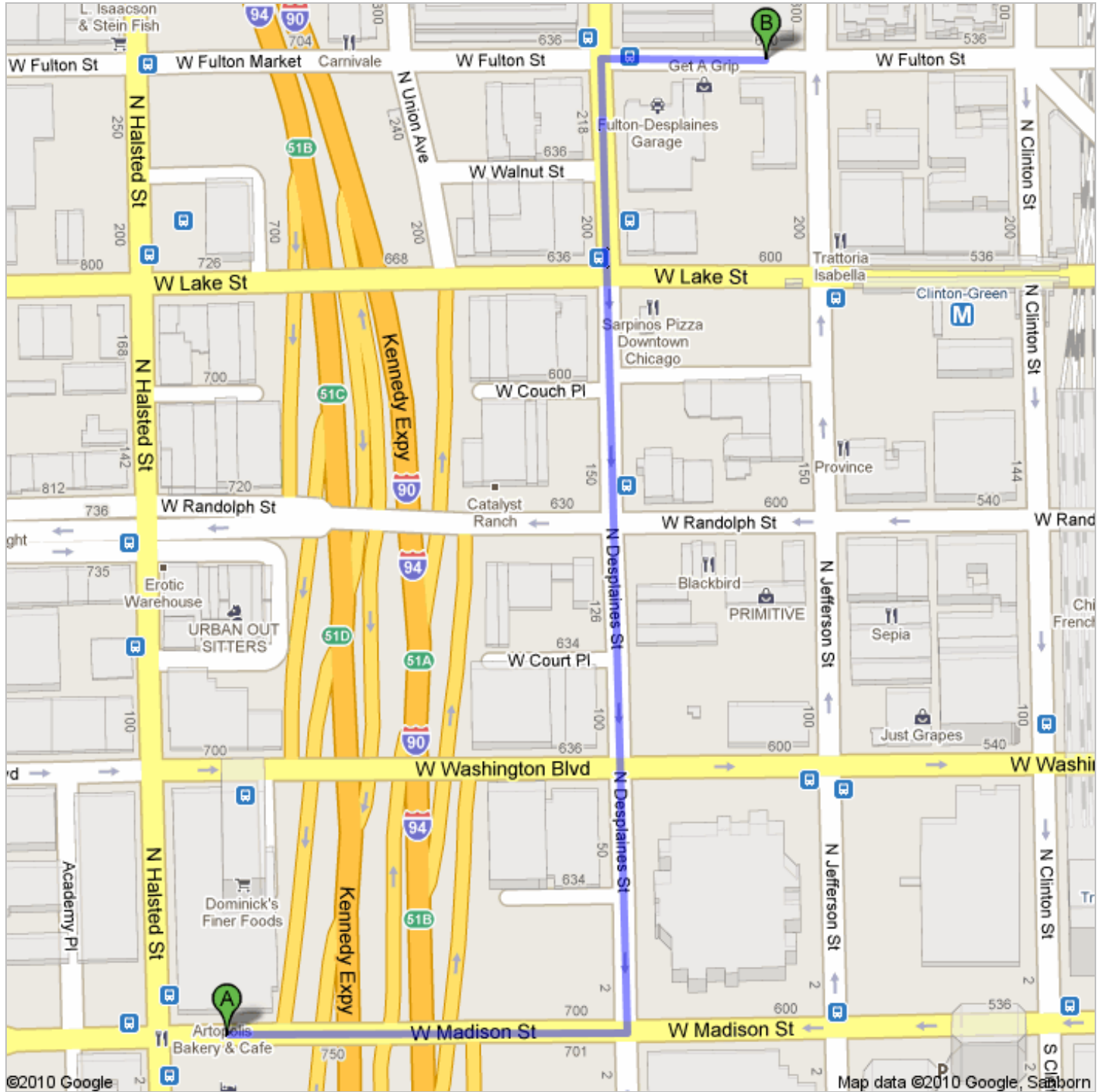
1. Call to Order – 8:00 AM
2. Continue Action on Public Proposals
3. Generate Committee Proposals
4. Adjourn – 5:00 PM

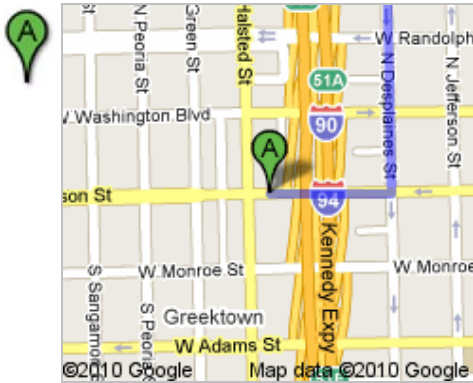


Save trees. Go green!
Download Google Maps on your phone at google.com/gmm



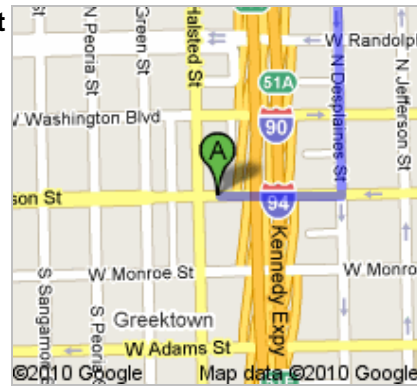
Walking directions are in beta.
Use caution – This route may be missing sidewalks or pedestrian paths.





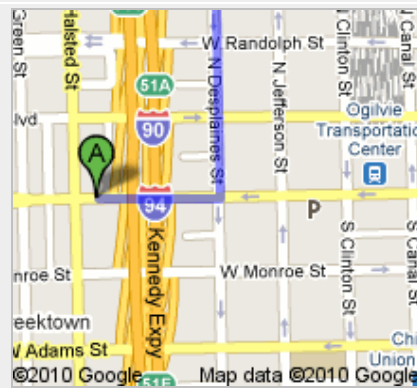
Crowne Plaza Chicago Metro
 733 West Madison Street, Chicago, IL 60661 - (312) 829-5000

1. Head **east** on **W Madison St** toward **N Desplaines St**
 About 3 mins



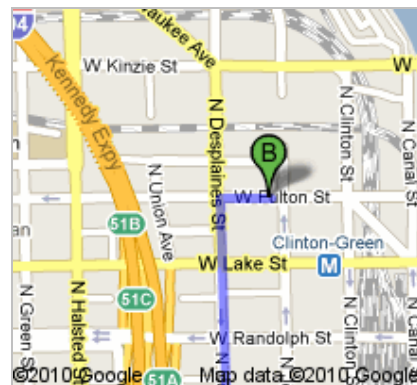
go 0.1 mi
 total 0.1 mi

2. Turn **left** at **N Desplaines St**
 About 7 mins

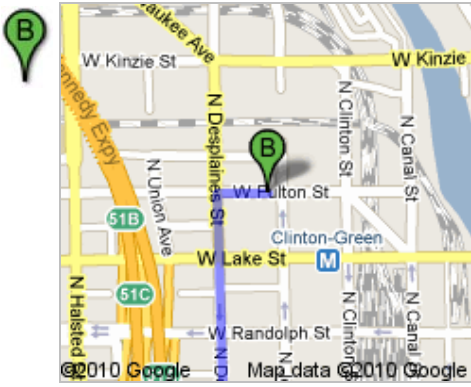


go 0.3 mi
 total 0.5 mi

3. Turn **right** at **W Fulton St**
 Destination will be on the left
 About 1 min



go 312 ft
 total 0.5 mi



600 W Fulton St, Chicago, IL 60661

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2010 Google, Sanborn

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Distribution by %

ELT-AAA Electronic Computer Systems

Name	Company	Representation	Class	Office
Keith J. Polasko	US National Security Agency		E	Principal
		Voting Number 1	Percent 4%	
Joseph A. Spataro	Liberty Mutual Property		I	Secretary
Vincent A. Crowder	Fireman's Fund Insurance Company		I	Principal
Mark Suski	Aon/Schirmer Engineering Corporation	AON	I	Principal
		Voting Number 3	Percent 12%	
Robert M. Pikula	Reliable Fire Equipment Company	NAFED	IM	Principal
		Voting Number 1	Percent 4%	
Wayne J. Aho	Xtralis, Inc.		M	Principal
Bernhard G. Bischoff	UTC/Chemetron Fire Systems	FSSA	M	Principal
Timothy Carman	Tyco Fire Suppression & Building Products	TYCO	M	Principal
Thomas G. Deegan	The Viking Group, Inc.	NFSA	M	Principal
Stanley Kaufman	CableSafe, Inc./OFS	SPI	M	Principal
Robert L. Langer	Amerex Corporation	FEMA	M	Principal
David Zolotar	Oracle America, Inc.	ITIC	M	Principal
		Voting Number 7	Percent 28%	
Thomas M. Burke	Underwriters Laboratories Inc.	UL	RT	Principal
		Voting Number 1	Percent 4%	
Ralph E. Transue	The RJA Group, Inc.	RJA	SE	Chair
Alastair R. Brown	Rushbrook Consultants, Ltd.		SE	Principal
Thomas Goonan	Tom Goonan Associates		SE	Principal
Frank W. Peri	Communications Design Corporation		SE	Principal
Henry J. Roux	Roux International Inc.		SE	Principal
Sam P. Salwan	Environmental Systems Design, Inc.		SE	Principal
Thomas J. Wysocki	Guardian Services, Inc.		SE	Principal
		Voting Number 7	Percent 28%	

Distribution by %**ELT-AAA Electronic Computer Systems**

Name	Company	Representation	Class	Office
Ronald Marts	Telcordia Technologies	ATIS	U	Principal
Stephen McCluer	APC by Schneider Electric		U	Principal
George A. Petrou	JP Morgan Chase & Company		U	Principal
Joseph Radakovich, Jr.	US Department of Defense		U	Principal
Brian P. Rawson	International Business Machines (IBM)		U	Principal

Voting Number 5 **Percent** 20%

Total Voting Number 25

Technical Committee on Electronic Computer Systems

MEMORANDUM

TO: Technical Committee on Electronic Computer Systems
FROM: Amy Spencer, Senior Chemical Engineer/Staff Liaison
DATE: April 24, 2007
RE: **NFPA 75 ROC Conference Call #2 Meeting Minutes**

Enclosed are the minutes from the April 24, 2007 conference call ROC meeting, the second of two. Please feel free to bring any substantial incorrect items in these minutes to my attention or note them during the next ROC conference call.

You should be getting your ballot within approximately one month to vote on the actions taken during the conference calls. The details of the changes will also appear in the F2007 Report on Comments (ROC). The ROCs will be mailed to all NFPA 75 TC members automatically, and are usually mailed out in the August timeframe.

If you have any questions or comments, please feel free to contact my assistant, Carol Sances or me at (617) 984-7951 or via e-mail at csances@nfpa.org or aspencer@nfpa.org. For technical questions, you may contact the Chair, Tom Wysocki at (815) 469-4767 or by e-mail at twysocki@gsifire.com.

MINUTES OF MEETING

Technical Committee on Electronic Computer Systems

ROC Conference Call #2
April 24, 2007

Attendance:

Principal Members/Staff:

Tom Wysocki, Guardian Services, Inc., CHAIR
Amy Spencer, NFPA Staff Liaison

Bernhard Bischoff, Chemetron Fire Systems
Thomas Burke, Underwriters Laboratories, Inc.
Thomas Child, Aon Risk Services
Thomas Deegan, National Fire Sprinkler Association
Jerry Dempster, Tyco International
Robert Langer, Fire Equipment Manufacturers' Association
Ronald Marts, Alliance for Telecommunications Industry
Stephen McCluer, American Power Conversion Corporation
George Petrou, JP Morgan Chase & Company
Keith Polasko, US National Security Agency
Mark Rochholz, Schirmer Engineering Corporation
David Zolotar, Information Technology Industry Council

Alternates:

Richard Puig, Fire Suppression Systems Association

Minutes of Meeting:

- 1. Call to order.** The meeting was called to order by the Chair at 11:05 a.m. on April 24, 2007. Amy Spencer, NFPA Senior Chemical Engineer continued to serve as interim Staff Liaison for this meeting due to Mark Conroy's employment change.
- 2. Roll Call.** Attendance was taken by roll call.
- 3. Minutes Approval.** The minutes from the previous ROP meeting (April 5 in Boulder, CO) were not submitted by the Secretary. The Staff Liaison will coordinate with the secretary to get them sent out and posted. The minutes will need to be considered at the next meeting. The minutes from the first ROC conference call were approved without amendment.
- 4. NFPA Staff Report.** The NFPA Staff Liaison reviewed the meeting procedures and the revision schedule.
- 5. Comments.** The remaining two public comments were acted upon based on task group recommendations. Committee actions will be presented in the Fall 2007 Report on Comments (ROC) to be sent to all members and submitters of proposals in the August

2007 timeframe. Anyone else who would like to receive a free copy can call our Publications Department at 800 344-3555 or view the ROC via our website at www.nfpa.org.

6. Task Groups. The two task groups reported on their topics, and comments were formed as a result.

a) Log 3: Keith Polasko, Stephen McCluer (Chair), Brian Rawson, Jerry Dempster, Bernie Bischoff and Ron Marts.

b) Section 10.1.3 – clarification of references. Tom Burke created a committee comment.

a) Log 3: Keith Polasko, Stephen McCluer (Chair), Brian Rawson, Jerry Dempster, Bernie Bischoff and Ron Marts.

The following committee proposal will appear in the ROC ballot:

Modify 8.1.1.2 of NFPA 75 to read.

“Either an automatic sprinkler system, carbon dioxide extinguishing system, or inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area shall be provided unless exemption is allowed by applicable installation standards identified in 2.2.”

b) Section 10.1.3 – clarification of references. Tom Burke created a committee comment.

Log CC#1 to add reference to NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials, ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, or UL 723, Standard for Test for Surface Burning Characteristics of Burning Materials in 5.4.2, 7.1.4 and 10.1.3 of the standard will be included in the ROC ballot.

7. Future Trends Subcommittee Report. During the first conference call in March, there was a report by Bernie Bischoff regarding support equipment. No new information within the last month.

8. New Task Group. Steve McClure, Ron Marts and Tom Wysocki will review the proposed NEC Article 708/585 and report to the TC regarding the impact to NFPA 75

9. Next Revision Cycle. The Committee decided to maintain the existing revision cycle of a four year cycle; the next cycle would be F2011.

10. Adjournment. The meeting adjourned at 1:00 on April 24, 2007.

ATTACHMENT A: ROC Minutes**NFPA 75 Revision Cycle
Fall 2007**

Proposal Closing	May 2006
Report on Proposals Meeting	April 2006
ROPs mailed	December 2006
Comments closing	March 2, 2007
ROC Conference Call #1	March 20, 2007
ROC Conference Call #2 (May 4, 2007 last date for meeting)	April 24, 2007 11 am Eastern
ROCs mailed	August 2007
Intent to make motion closing (NITMAM)	October 19, 2007
Council Issuance without ITMAM	January 25, 2008
NFPA Spring Meeting for documents w/ITMAM	June 2-6, 2008

NFPA 75 Revision Cycle**Fall 2011**

Proposal Closing	May 28, 2010
Final date for ROP Meeting	August 27, 2010
Ballots Mailed to TC before	September 17, 2010
ROP Published	December 22, 2010
Comment Closing	March 4, 2011
Final Date for ROC Meeting	May 6, 2011
Ballots Mailed to TC before	May 20, 2011
ROC Published	August 26, 2011
Intent to Make a Motion Closing (NITMAM)	October 21, 2011
Issuance of Consent Document (No NITMAMs)	December 13, 2011
NFPA Annual Meeting (Las Vegas)	June 2012
Issuance of Document with NITMAM	August 9, 2012

Note from the Staff Liaison

Dear Committee Members:

We are very pleased that you will be participating in the processing of the 2012 Edition of NFPA 75, *Standard for the Protection of Information Technology Equipment*.

Development of the Standard would not be possible without the participation of volunteers like you.

Materials You Will Need to Have for the Committee Meeting

- 209 Edition of NFPA 75
- Agenda with all attachments
- Committee Officers' Guide (Chairs)
- Roberts' Rules of Order (Chairs – abbreviated version may be found in the Committee Officer's Guide)

"Nice to Have" Materials

- NFPA Annual Directory
- NFPA Manual of Style
- Prepared Committee Proposals (If applicable)

Preparation

Prepared actions and statements will clarify your position and provide the committee with a starting point. Prepared actions and statements really help expedite the progress of the meeting.

Getting Things Done

Proposals

Only one posting of proposals will be made; it will be arranged in section/order and will be pre-numbered. This will be posted to the NFPA e-committee website and also attached

to this Agenda Package. If you have trouble accessing the website please contact Joanne Goyette at jgoyette@nfpa.org. Please bring the proposals to the committee meeting.

The processing schedule to be followed by the committee is outlined in the schedule in this package. As the schedule is very tight, no extensions of the deadline for receipt of completed ballots or extensions of the period to change vote will be possible.

It is therefore suggested that those of you who must consult with others regarding your ballot do so based on the material passed out at the meeting, and your meeting notes. Do not wait for receipt of the ballot materials from NFPA.

Regulations and Operating Procedures

All actions at, and following, the committee meetings will be governed in accordance with the NFPA Regulations Governing Committee Projects. The latest Regulations (as of this printing) appear on pages 10-28 of the 2010 NFPA Directory.

All committee actions will be in accordance with the NFPA Regulations Governing Committee Projects. The style of NFPA 75 will comply with the Manual of Style for NFPA Technical Committee Documents. Failure to comply with these rules could result in challenges to the standards-making process. A successful challenge on procedural grounds could prevent or delay publication of NFPA 75. Consequently, committees must follow the regulations and procedures.

Processing Proposals

Proposals Requiring Committee Actions

All public proposals must be acted upon. If a proposal does not comply with Section 4.3.3 of the NFPA Regulations Governing Committee Projects (an incomplete proposal), the committee may reject the proposal. However, any of the standard actions may be taken. Please make sure that the committee's action and the committee's statement result in a complete action that can be readily understood.

Committee Actions

The following are the actions permitted by the Regulations Governing Committee Projects for disposition of proposals.

Accept

The committee accepts the proposal exactly as written. Only editorial changes such as paragraph and section numbering, and corrections to spelling, capitalization, and hyphenation may be made.

If a proposal is accepted without a change of any kind, except for editorial changes, the committee can simply indicate acceptance. The committee should add a committee statement explaining the action if, for example the committee does not agree with all of the substantiation or supporting data or has a number of different reasons for acceptance than those stated in the substantiation or supporting data. The absence of such a statement could mislead the reader by giving the impression that the committee agreed with all of the substantiation for the proposal.

Reject

The proposal is rejected by the committee. If the principle or intent of the proposal is acceptable in whole or in part, the proposal should not be rejected, it should be accepted in principle or accepted in principle in part. A complete reason for rejection of the proposal must be supplied in the committee statement.

Accept in Principle

Accept the proposal with a change in wording. The committee action must indicate specifically what action was taken to revise the proposed wording, and where the wording being revised is located (i.e., in the proposed wording or in the document). If the details are in the action on another proposal, the committee action may simply indicate "Accept in Principle" but reference should then be made in the committee statement to the specific proposal detailing the action.

Accept in Part

If part of a proposal is accepted without change and the remainder is rejected, the proposal should be "Accepted in Part." The committee action must indicate what part was

accepted and what part was rejected and the committee statement must indicate its reasons for rejecting that portion.

Accept in Principle in Part

This is a combination of "Accept in Principle" and "Accept in Part" as shown above.

Committee Statements

Any proposal that is "Accepted in Principle", "Accepted in Part", "Accepted in Principle in Part" or "Rejected" must include a committee statement, preferably technical in nature that provides the reasons for the action.

References to the requirements of other documents as a reason for rejection should be to the specific sections of the document including the requirements. If there is more than one such section, the reference should include a least one, identified as an example.

It is a violation of the regulations for a committee to reject a proposal simply because it accepted a different proposal on the same subject. Reference in the committee statement to another committee action is inappropriate unless the referenced proposal contains all of the applicable technical justification for the action.

If the rejection or change was for the same reason that another proposal was rejected or changed, the committee statement may refer to that proposal giving the same reason for rejection or change. Please verify that cross references to other proposals are correct.

The committee statement should not refer to another committee statement which, in turn, refers to some other committee statement. There may be a situation where the committee will want to refer to two, three, or more committee statements if they are all appropriate.

When the committee develops a committee action for a proposal that is accepted in principle, the rationale must indicate why the wording submitted was not accepted. This reason should be technical in nature, unless the committee has simply rewritten the submitter's text, in which case the committee can state that the proposed wording should meet the submitter's intent.

The committee statement on a proposal that is accepted in part should indicate specifically why that part of the proposal was not accepted.

Easy Procedures for Handling a Motion

NFPA Committee Meetings are conducted in accordance with Roberts' Rules of Order. In order for a proposal to be discussed, a motion must be made. A simplified procedure for discussion of motions is as follows:

Member

- Member Addresses the Chair
- Receives Recognition from the Chair
- Introduces the Motion
- (Another Member) Seconds the Motion.

Chair (Presiding Officer)

- States the Motion
- Calls for Discussion
- Takes the vote
- Announces the Result of the Vote

It is imperative that you review the proposals before the meeting and develop proposed actions and statements. These prepared actions and statements will clarify your position and provide the committee with a starting point. Prepared actions and statements really help expedite the progress of the meeting.

Balloting Dos and Don'ts

Either fax or mail your ballot - Please do not do both. Don't return the entire package; just return the appropriate ballot page(s) and explanation of votes.

Alternate Members

At the end of each code cycle, the Standards Council reviews records of all members regarding their participation in the standards-making process. Therefore, it is important

for alternate members to remember that return of ballots is expected, even though they know that their principal member will be attending meetings and returning their ballots.

General Procedures for Meetings

- Use of tape recorders or other means capable of producing verbatim transcriptions of any NFPA Committee Meeting is not permitted.
- Attendance at all NFPA Committee Meetings is open.
- All guests must sign in and identify their affiliation.
- Participation in NFPA Committee Meetings is generally limited to committee members and NFPA staff. Participation by guests is limited to individuals, who have previously requested of the chair time to address the committee on a particular item, or individuals who wish to speak regarding public proposals or comments that they submitted.
- The chairman reserves the right to limit the amount of time available for any presentation.
- No interviews will be allowed in the meeting room at any time, including breaks.
- All attendees are reminded that formal votes of committee members will be secured by letter ballot. Voting at this meeting is used to establish a sense of agreement, but only the results of the formal letter ballot will determine the official position of the committee on any proposal.
- Note to Special Experts: Particular attention is called to Section 3.3(e) of the NFPA Guide for the Conduct of Participants in the NFPA Codes and Standards Development Process in the NFPA Directory that directs committee members to declare their interest representation if it is other than their official designation as shown on the committee roster, such as when a special expert is retained and represents another interest category on a particular subject. If such a situation exists on a specific issue or issues, the committee member shall declare those interests to the committee, and refrain from voting on any proposal, comment, or other matter relating to those issues.
- Smoking is not permitted at NFPA Committee Meetings.

75- Log #CP1
(Entire Document)

Final Action:

Submitter: Technical Committee on Electronic Computer Systems,

Recommendation: Review entire document to: 1) Update any extracted material by preparing separate proposals to do so, and 2) review and update references to other organizations documents, by preparing proposal(s) as required.

Substantiation: To conform to the NFPA Regulations Governing Committee Projects.

75- Log #82
(Title)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Request Technical Correlating Committee to revise the name of the document:

Standard for the Fire Protection of Information Technology Equipment.

Substantiation: Per paragraph 1.2 (Purpose), "The purpose of this standard is to set forth the minimum requirements for the protection of information technology equipment... from damage by fire or its associated effects...".

The existing title would lead one to think that NFPA 75 is a design guide for how to design an ITE space to protect it against such things as natural events (storms, earthquakes, etc.), civil events (wars, riots) security breaches, (arson or sabotage), or other non-fire-related events. Although some of these are touched upon in Annex commentary, none of these issues are within the scope of the document. This document does not include design for efficiency, design for environment, or design for reliability and availability. The title should reflect its scope and be clear that this is a standard strictly for FIRE protection.

75- Log #1
(2.2)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text as follows:

~~NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*, 2006 edition.~~

Substantiation: NFPA 255 has been withdrawn.

75- Log #75
(2.3.2)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

2.3.2 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 72, Standard for Tests for Fire Resistance of Record Protection Equipment, 2001, including revisions through August 18, 2005 November 6, 2009.

~~UL 478, Standard for Electronic Data-Processing Units and Systems, 1980:~~

ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials, 2003-2008.

ANSI/UL 900, Standard for Air Filter Units, 2004, including revisions through November 6, 2009.

~~UL 1950, Standard for Safety of Information Technology Equipment, 1995:~~

UL 60950, Safety of Information Technology Equipment, 2000, including revisions through October 30, 2007.

ANSI/UL 60950-1, Information Technology Equipment — Safety — Part 1: General Requirements, 2003-2007.

Substantiation: ANSI/UL 72 was reaffirmed in November 2009. UL 478 has been withdrawn in 1990 and replaced by UL 60950-1. A new edition of ANSI/UL 723 was published in September 2008. UL 60950-1 replaced UL 1950 in 2005. UL 60950-1 replaced UL 60950. A new edition of ANSI/UL 60950-1 was published in 2007. ANSI approval designations have been added as applicable. Edition and revision dates are updated.

75- Log #83

(3.2.4, 10.4.4(1), and 10.4.4(6))

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Global editorial comment - Request Technical Committee to find alternative language to be used in place of the word “suitable”

Substantiation: The word “suitable” is identified as possibly not enforceable and should not be used, per the NFPA style manual Table 2.2.2.3.

75- Log #4

(3.3.x.1 Critical Operations Data System (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Critical Operations Data System. An information technology equipment system that requires continuous operation for the reasons of public safety, emergency management, national security, or business continuity. [70:645.2]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 645 of the 2011 edition of the National Electrical Code.

75- Log #5

(3.3.x.2 Abandoned Supply Circuits and Interconnecting Cables (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Abandoned Supply Circuits and Interconnecting Cables. Installed supply circuits and interconnecting cables that are not terminated at equipment and not identified for future use with a tag. [70:645.2]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 645 of the 2008 and 2011 editions of the National Electrical Code.

75- Log #6 Final Action:
(3.3.x.3 Information Technology Equipment (ITE) (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Information Technology Equipment (ITE). Equipment and systems rated 600V or less, normally found in offices or other business establishments and similar environments classified as ordinary locations, which are used for creation, and manipulation of data, voice, video and similar signals that are not communications equipment as defined in Part I of Article 100 and do not process communications circuits as defined in section 800.2 of NFPA 70 *National Electrical Code*. [70:645.2]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 645 of the 2011 edition of the National Electrical Code.

75- Log #7 Final Action:
(3.3.x.4 Remote Disconnect Control (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Remote Disconnect Control. An electric device and circuit that controls a disconnecting means through a relay or equivalent device. [70:645.2]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 645 of the 2011 edition of the National Electrical Code.

75- Log #8 Final Action:
(3.3.x.5 Zone (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Zone. A physically identifiable area (such as barriers or separation by distance) within an information technology equipment room with dedicated power and cooling systems for the information technology equipment or systems. [70:645.2]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 645 of the 2011 edition of the National Electrical Code.

75- Log #2 Final Action:
(3.3.x.6 Communications Equipment (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Communications Equipment. The electronic equipment that performs the telecommunications operations for the transmission of audio, video, and data, and includes power equipment (e.g., dc converters, inverters, and batteries) and technical support equipment (e.g., computers). [70:100]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 100 and used in 645 of the 2011 edition of the National Electrical Code.

75- Log #3
(3.3.x.7 Raceway (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Raceway. An enclosed channel of metal or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in NFPA 70, *National Electrical Code*. Raceways include, but are not limited to, rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, liquidtight flexible conduit, flexible metallic tubing, flexible metal conduit, electrical nonmetallic tubing, electrical metallic tubing, underfloor raceways, cellular concrete floor raceways, cellular metal floor raceways, surface raceways, wireways, and busways. [70:100]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 100 and used in 645 of the 2011 edition of the National Electrical Code.

75- Log #9
(3.3.x.8 Plenum (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Plenum. A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system. [90:3.3.22]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 100 and used in 645 of the 2011 edition of the National Electrical Code. The primary source of the definition is NFPA 90A.

75- Log #10
(3.3.x.9 Conductive Optical Fiber Cable (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Conductive Optical Fiber Cable. A factory assembly of one or more optical fibers having an overall covering and containing non-current-carrying conductive member(s) such as metallic strength member(s), metallic vapor barrier(s), metallic armor or metallic sheath. [70:770.2]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 770 and used in 645 of the 2011 edition of the National Electrical Code.

75- Log #11

Final Action:

(3.3.x.10 Communications Circuit (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Communications Circuit. The circuit that extends voice, audio, video, data, interactive services, telegraph (except radio), outside wiring for fire alarm and burglar alarm from the communications utility to the customer's communications equipment up to and including terminal equipment such as a telephone, fax machine, or answering machine. [70:800.2]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 800 and used in 645 of the 2011 edition of the National Electrical Code.

75- Log #12

Final Action:

(3.3.x.11 Optical Fiber Cable (New))

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

Optical Fiber Cable. A factory assembly of one or more optical fibers, having an overall covering, which transmit light for control, signaling, and communications. [70:770.2]

Substantiation: This proposal is a companion proposal to a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75. The term is defined in Article 770 and used in 645 of the 2011 edition of the National Electrical Code.

75- Log #84

Final Action:

(3.3.16 Support Equipment and A.3.3.14 (New))

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Insert a new definition and renumber subsequent subparagraph(s).

3.3.16* Support Equipment. Equipment that is essential to the operation, maintenance, installation or de-installation of information technology equipment.

A.3.3.16 Support Equipment. Support equipment can mean the physical infrastructure equipment necessary for the information technology equipment, such as equipment racks, power supply and distribution equipment, air conditioning, and lighting. It can also include such things as test equipment, material handling equipment, ladders, tools and other equipment that may be required for installation and maintenance and which may not be permanently installed. Non-permanent equipment would normally be removed from the Information technology equipment space when not needed for a particular task.

Substantiation: Paragraph 6.1.1 prohibits the presence of anything but IT equipment and support equipment, but the term "support equipment" is not defined. The proposed definition attempts to put some boundaries on the term. The proposed Annex material elaborates to give some examples of the type of support equipment that would be permitted. It could be permanently installed, it could be portable equipment and tools, or it could be temporarily-installed equipment used by operators and maintenance technicians. The latter, while "permitted", should be removed from the room when it is not being used. [Note: The final sentence in A.3.3.16 may need to be moved to A.6.1.1 if it is deemed to be a requirement and therefore not permitted in a definition or in the clarification of a definition.]

75- Log #58
(4.1)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Delete 4.1(2), renumber remaining list:

4.1 Risk Factors. The following factors shall be considered in determination of the need for protecting the environment, equipment, function, programming, records, and supplies (see Annex C):

- (1) Life safety aspects of the function (e.g., process controls, air traffic controls)
- ~~(2)~~ Fire threat of the installation to occupants or exposed property
- ~~(3)~~(2) Economic loss from loss of function or loss of records
- ~~(4)~~(3) Economic loss from value of equipment
- ~~(5)~~(4) Regulatory impact
- ~~(6)~~(5) Reputation impact.

Substantiation: Section 1.2 of NFPA 75 states the purpose of this standard is for the protection of the information technology equipment and information technology equipment areas, with Annex A further referring to "uninterrupted operation of the system". Item (2) of the Section 4.1 list is not consistent with that stated purpose or with the nature of the other items in the list. The fire threat to occupants and exposed property is adequately and more appropriately addressed by the building code and the Life Safety Code. There is no assumption or documentation that an ITE Area or Room poses any greater hazard than other uses covered by Business Occupancies, or incidental to other predominant occupancies.

75- Log #71

Final Action:

(4.1, 8.1.1.2, and A.4.1.2 (New))

 Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Add new text as follows:

3.1.x (New) Fire Risk Analysis. A process to characterize the risk associated with fire that addresses the fire scenario or fire scenarios of concern, their probability, and their potential consequences.

Revise text as follows:

4.1 Fire Risk Analysis Factors.

4.1.1* A fire risk analysis shall be permitted to be used to determine the construction, fire protection and fire detection requirements for information technology equipment, information technology rooms and information technology areas where specifically permitted by Chapters 5 and 8.

4.1.1.1 The fire risk analysis conducted in 4.1.1 shall be documented.

4.1.2* The following factors shall be considered in determination of the need for protecting the environment, equipment, function, programming, records, and supplies level of acceptable fire risk (see Annex C):-

Rest unchanged

Add new text as follows:

A.4.1.1 (New) The fire risk analysis should be evaluated by the stakeholders. See NFPA 551, Guide for the *Evaluation of Fire Risk Assessments* for additional guidance.

A.4.1.2 (New) The protection for information technology equipment and information technology equipment areas should be specific to the nature and anticipated fire risks of each facility. The risk analysis should consider the risk and hazards associated with the site and services provided for a given fire safety problem. Additional considerations may include:

- (1) Availability of alternative information technology equipment or information technology equipment rooms
- (2) Permitted downtime of information technology equipment
- (3) Presence of additional fire protection and detection equipment proximate to information technology equipment room
- (4) Survivability of the information technology equipment and information technology equipment room environment
- (5) Number and training of emergency response personnel (6) Building construction

Revise text as follows:

8.1.1.2* An automatic sprinkler system, a carbon dioxide extinguishing system, or an inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area shall be provided, unless otherwise determined by the fire risk analysis in Section 4.1.

Substantiation: This is one of two public proposals being submitted to provide some relief to the mandatory underfloor fire suppression requirement. Though this is preferred, acceptance of either will meet my intent.

The TC accepted this concept in principle during the 2007 ROC cycle when it added new text to 8.1.1.2 in response to my public comment 75-4 (which requested reconsideration of my original proposal 75-11 to add “where the risk warrants it” at the end of 8.1.1.2). However, the changed proposed by the TC to add language to 8.1.1.2 to refer to “applicable installation standards identified in section 2.2” did not do as I intended. I therefore submitted a NITMAM to accept my original proposal. The motion was accepted by the assembly at the 2008 annual technical meeting in Las Vegas. However, this change failed subsequent ballot by the TC as many felt the language I provided was too vague. Hence, we’re back to language that was created in the 2002 edition. In response to my public comment last cycle, the TC indicated in its committee statement that this issue would be reviewed during the next code cycle. To facilitate this discussion, I have submitted this proposal. The text I’ve developed for Section 4.1 permits the use of a fire risk analysis as a basis to determine what safeguards may be applicable. Fire risk analyses are discussed in NFPA 551 and a number of concepts from that document have been proposed for NFPA 75. In addition, a risk analysis is used in the 2010 edition NFPA 72 to determine whether mass notification systems (MNS) are required and what provisions should be implemented if an MNS is warranted. Fire risk analyses are consistent with the scope of Chapter 4 and should be permitted to determine whether certain construction or fire protection requirements are necessary for protecting information technology equipment, rooms and areas. This also aligns with existing guidance stated in A.8.2 and A.8.4.1. The intent is only to allow the use of fire risk analyses where specifically permitted by Chapters 5 and 8.

8.1.1.2 was revised so the new fire risk analysis could be used to determine whether there is a critical need to protect data, reduce equipment damage and facilitate return to service via an underfloor fire suppression system, instead of the current mandatory requirement, which doesn’t give due consideration when such a need isn’t warranted (e.g., when nothing is installed beneath the raised floor, when wiring within the raised floor space is plenum rated, if power is

disconnected to all electrical equipment located beneath the raised floor, etc.). Note: mandatory underfloor fire suppression remains as the default requirement if no fire risk analysis is conducted or the fire risk analysis indicates the need for mandatory underfloor fire suppression.

75- Log #85
(5.3.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Delete 5.3.1 and renumber subsequent sub-paragraphs.

~~5.3.1 All interior wall and ceiling finishes in the information technology equipment area shall have a Class A rating in accordance with NFPA 101, Life Safety Code.~~

Substantiation: Paragraphs 5.3.1 and 5.3.2 are confusing. 5.3.1 says the ITE area shall be Class A rated, but 5.3.2 says it can be Class B rated.

The only difference is 5.3.2 is for sprinklered areas. Since 5.1.1 already requires sprinklers, 5.3.1 is unnecessary.

75- Log #86
(5.4)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add new text to read as follows:

5.4* Raised Floors

Raised floors are frequently used in information technology equipment rooms for cooling, cable distribution, piping, or other reasons. Raised floor are not required but, when used, shall comply with the requirements of this section and Article 645 of NFPA 70.

Substantiation: Section 5.4 implies that there will always be a raised floor in an information technology space, which is simply not the case. The trend is away from raised floors with equipment mounted directly to the structural floor. This proposal clarifies in the introductory paragraph that, when raised floors are present, they shall be bound by the requirements of this Standard and Article 645 of the NEC.

75- Log #76
(5.4.2)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

5.4.2 Decking for raised floors shall be one of the following:

(1) Noncombustible

(2) Pressure-impregnated, fire-retardant treated lumber having a flame spread index of 25 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials

(3) Wood or similar core material that is encased on the top and bottom with sheet, cast, or extruded metal, with all openings or cut edges covered with metal or plastic clips or grommets so that none of the core is exposed, and that has an assembly flame spread index of 25 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials.

Substantiation: NFPA 255 was withdrawn in the Fall 2009. ANSI approval designation is added to ANSI/UL 723.

75- Log #13
(5.4.2(2) and (3))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text as follows:

(2) Pressure-impregnated, fire-retardant treated lumber having a flame spread index of 25 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~; ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*

(3) Wood or similar core material that is encased on the top and bottom with sheet, cast, or extruded metal, with all openings or cut edges covered with metal or plastic clips or grommets so that none of the core is exposed, and that has an assembly flame spread index of 25 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~; or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*

Substantiation: NFPA 255 has been withdrawn.

75- Log #87
(5.4.5 (New))

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add new text to read as follows:

5.4.5 Raised floor surfaces shall be constructed or coated with materials to minimize the creation of electrostatic discharge (ESD).

Substantiation: Electrostatic discharge can create damage and operational failure in an ITE space. Measures should be taken to minimize the possibility of ESD from personnel walking on the raised floor.

75- Log #59
(5.5.2)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Revise subsection 5.5.2 and subordinate paragraphs as follows:

5.5.2 ~~Where any pass-throughs or windows located in fire-resistant rated construction are provided in any fire-rated wall of an information technology equipment area, each opening shall be equipped with an automatic fire-rated shutters or a fire-rated windows of equal rating to the wall installed and maintained in accordance with NFPA 80, Standard for Fire Doors and Other Opening Protectives.~~

5.5.2.1 The shutters or windows shall be operated automatically by the presence of either smoke or fire on either side of the wall.

5.5.2.2 The shutters or windows shall be operated automatically by operation of the HVAC disconnecting means required by 10.4.8.

5.5.2.3 The fire-rating of the shutters or windows shall be not less than the fire-rating of the wall in which it is located.

Substantiation: Reference to NFPA 80 is added to incorporate already established installation and maintenance requirements.

Revision adds a new requirement that the shutters or windows operate upon activation of the HVAC disconnecting means of 10.4.8.

Revision of paragraphs complies with NFPA Manual of Style for at least two subdivisions.

75- Log #67
(5.5.2)

Final Action:

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise text as follows:

5.5.2 Where any pass-throughs or windows are provided in any fire-rated wall of an information technology equipment area, each opening shall be equipped with an automatic fire-rated shutter, service counter fire door or a fire-rated window of equal rating to the wall.

Substantiation: NFPA 80 also has provisions for service counter fire doors (in Chapter 13 of NFPA 80) that should also be permitted as a pass-through opening, given the protection is similar to that of fire shutters (in Chapter 12 of NFPA 80).

75- Log #60
(5.5.3)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Revise subsection 5.5.3 as follows:

5.5.3 ~~The a~~Air ducts and air transfer openings passing through fire-resistant rated construction shall be provided with automatic combination fire and smoke dampers where the ducts pass through fire resistant-rated construction installed and maintained in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*.

Substantiation: Revision clarifies that non-ducted air penetrations (air transfer openings) through the fire rated enclosure of the Information Technology Equipment Room or Area require automatic combination fire and smoke dampers as well.

The term "combination fire and smoke damper" is used to match the terminology in UL555S.

Reference to NFPA 80 is added to incorporate already established installation and maintenance requirements.

75- Log #61
(5.6)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Delete section 5.6 in entirety:

~~5.6 Air Space. Where the air-space below a raised floor or above a suspended ceiling is used to recirculate information technology equipment room/information technology equipment area environmental air, the wiring shall conform to Article 645 of a NFPA 70, *National Electrical Code*.~~

Substantiation: Section 5.6 repeats the requirements of subsection 10.3.1. Chapter 10 is the more appropriate location for this requirement than Chapter 5.

75- Log #88
(5.6)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

Where information technology equipment wiring and cabling is installed in the air space below a raised floor or above a suspended ceiling that is used to recirculate information technology equipment room/information technology equipment area environmental air, the wiring shall conform to Article 645 of *NFPA 70, National Electrical Code*.

Substantiation: It is not clear in the existing text what wiring is meant to be addressed by 5.6. It could be mistaken to mean wiring associated with the air handling equipment. The additional words clarify that it is ITE wiring run through the air space.

75- Log #62
(6.1.1.1)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Delete paragraph 6.1.1.1 in entirety, renumber 6.1.1.2, delete 6.1.2 and subordinate paragraphs in entirety:

~~6.1.1.1 Small supervisory offices and similar light-hazard occupancies directly related to the electronic equipment operations shall be permitted within the information technology equipment room if noncombustible containers are provided.~~

~~6.1.2.1.1.2~~ Records shall be permitted in the information technology equipment room to the extent allowed in Chapter 9.

~~6.1.2 Office furniture in the information technology equipment room shall be of metal construction.~~

~~6.1.2.1 Metal frame chairs with integral seat cushions shall be of metal construction.~~

~~6.1.2.2 Insulated or controlled conductive coverings shall be permitted on surfaces of chairs, tables, desks, and so forth.~~

Substantiation: The wording “small” and “similar” of 6.1.1.1 is nonspecific, unenforceable and vague, and thus not permitted by the NFPA Manual of Style. To allow office space within the Information Technology Equipment Room introduces additional fuel and ignition sources within the room, increasing the risk to the equipment and mission therein which is counter to the purpose of this standard and counter to the segregation intent illustrated by Figure A.5.1.3. Further, to allow office space but require combustible materials be stored in noncombustible containers introduces an ongoing and daily oversight and inspection requirement that realistically has little chance of successful compliance. Information Technology Equipment rooms can be well designed and operated to exclude office space from within, and this paragraph should be deleted.

With the deletion of 6.1.1.1, subsection 6.1.2 becomes obsolete and contradictory, thus should be deleted as well.

75- Log #89
(6.2.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

6.2.1 The amount of paper records or other flammable medium within the information technology equipment room shall be kept to the absolute minimum required for essential and efficient operation.

Substantiation: A large part of information technology is information storage/retention. This is surely not what is intended to be eliminated by 6.2.1. This proposed change would clarify that the intent is to eliminate as much paper as possible (or maybe even other media as well, such as magnetic tape).

75- Log #77
(7.1)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

7.1 Information Technology Equipment.

7.1.1 Equipment and replacement parts shall meet the requirements of ~~UL 478, Standard for Electronic Data-Processing Units and Systems~~, UL 1950, ~~Standard for Safety of Information Technology Equipment~~, UL 60950, ~~Safety of Information Technology Equipment~~; or ANSI/UL 60950-1, Information Technology Equipment — Safety — Part I: General Requirements.

7.1.2* Each individual unit shall be constructed in such a way that by limiting combustible materials or by use of enclosures, fire is not likely to spread beyond the unit where the source of ignition is located. Automatic protection shall be provided for all units not so constructed.

7.1.3 Listed information technology equipment shall be considered as meeting the requirements of 7.1.2.

7.1.4* Enclosures of floor-standing equipment having external surfaces of combustible materials of such size that can contribute to the spread of an external fire shall have a flame spread index of 50 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, ASTM E 84, ~~Standard Test Method for Surface Burning Characteristics of Building Materials~~; or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials. Equipment conforming to the requirements of ~~UL 478, Standard for Electronic Data-Processing Units and Systems~~, UL 1950, ~~Standard for Safety of Information Technology Equipment~~, or UL 60950, ~~Safety of Information Technology Equipment~~, shall be considered as meeting the requirements of 7.1.4.

7.1.4.1 Equipment conforming to the requirements of ~~UL 478, Standard for Electronic Data-Processing Units and Systems~~, UL 1950, ~~Standard for Safety of Information Technology Equipment~~, UL 60950, ~~Safety of Information Technology Equipment~~; or ANSI/UL 60950-1, Information Technology Equipment — Safety — Part 1: General Requirements, shall be considered as meeting the requirements of 7.1.4.

Substantiation: UL 478 has been withdrawn in 1990 and replaced by UL 60950-1. UL 60950-1 replaced UL 1950 in 2005. NFPA 255 was withdrawn in the Fall 2009. ANSI approval designation is added to ANSI/UL 723 and ANSI/UL 60950-1.

75- Log #14
(7.1.4)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text to read as follows:

7.1.4* Enclosures of floor-standing equipment having external surfaces of combustible materials of such size that can contribute to the spread of an external fire shall have a flame spread index of 50 or less in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*; or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*. Equipment conforming to the requirements of UL 478, *Standard for Electronic Data-Processing Units and Systems*; UL 1950, *Standard for Safety of Information Technology Equipment*, or UL60950, *Safety of Information Technology Equipment*, shall be considered as meeting the requirements of 7.1.4.

Substantiation: NFPA 255 has been withdrawn.

75- Log #57
(8.1)

Final Action:

Submitter: Philip A. Sherer, AECOM

Recommendation: Revise text as follows:

~~8.1.1 Information technology equipment rooms and information technology equipment areas located in a sprinklered building shall be provided with an automatic sprinkler system:~~

8.1.1.1 Information technology equipment rooms and information technology equipment areas located in sprinklered or a nonsprinklered building shall be provided with an automatic sprinkler system, a gaseous clean agent extinguishing system, or both (*see Section 8.4*).

Substantiation: The standard requires an information technology room located in a sprinklered (water based suppression) building to be provided with a sprinkler system as a minimum but if the building that is not sprinklered the user can choose their suppression system. This would require two systems (water based and non-water based suppression system) if the owner/user of a sprinklered building was to install a non-water based suppression systems vs. the non-sprinklered building owner/user would be required to provide only one suppression system. It seems onuses to require this additional requirement on a building that is built and protected to a higher standard.

75- Log #68
(8.1)

Final Action:

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise text as follows:

4.1 Automatic Sprinkler Systems Fire Protection

Substantiation: The existing section title is not appropriate as the ensuring paragraphs don't strictly pertain to automatic sprinklers. "Fire Protection" seems appropriate given the chapter title.

75- Log #111
(8.1)

Final Action:

Submitter: Scott J. Harrison, UTC Fire & Security/Marioff North America

Recommendation: Add new text as follows:

*Water Mist Fire Protection Systems

*Where provided, water mist fire protection systems shall be installed in accordance with the requirements of NFPA 750.

*Water mist fire protection systems shall be designed and installed for the specific hazards and protection objectives specified in the listing.

*Detection systems utilized for the operation of water mist fire protection systems shall be installed in accordance with Section 8.5 or the listing criteria.

Substantiation: The additional text will align NFPA 75 2009 Chapter 8 Fire Protection and Detection Equipment (8.1 Automatic Sprinkler Systems) with NFPA 76 2009 Edition Chapter 8 Fire Protection Elements (8.6...Sprinkler Systems / Water Mist Fire Protection Systems).

Since these two technologies (NFPA 75 Information Tech. and NFPA 76 Telecom Fac. Tech) are combined in some occupancies such as Telephone Switching Stations with Computer Server Rooms and Air Traffic Control Towers with Communications and Computer Equipment Rooms, it would keep the standards in line with each other. This would reduce the need for formal interpretation and provide clear wording that has already been approved in NFPA 76 and define another fire protection alternative in NFPA 75.

This is not original material; its reference/source is as follows:

Il wording has been sourced from NFPA 76 Chapter 8 Section 8.6.2.5 Paragraphs 8.6.2.5.1 thru 8.6.2.5.3.

75- Log #46
(8.1.1.2)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revised text to read as follows:

8.1.1.2*Where combustible material is present, either an automatic sprinkler system, carbon dioxide extinguishing system, or clean inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area shall be provided.

Substantiation: Where underfloor areas are kept free of combustible material, there is no need for underfloor suppression. Research suggests there is no evidence of underfloor fires where no combustibles are present.

Where underfloor suppression is required, clean agents should be an option, particularly if they are already used in the space above.

75- Log #63
(8.1.1.2)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Revise paragraph 8.1.1.2:

8.1.1.2 Based upon the risk factors of Section 4.1, consideration shall be given to the installation of aAn automatic sprinkler system, a carbon dioxide extinguishing system, or an inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area. ~~shall be provided.~~

Substantiation: When this section was added in the 2003 edition, no substantiation was provided to quantify and document the actual risk or hazard of fire under the raised access floor. A requirement was thus levied against an unknown problem.

This existing requirement as written is excessive to the point that suppression would be required even in underfloor spaces that have absolutely no combustibles present.

The absolute requirement to provide underfloor suppression should be struck and users allowed to evaluate their individual risk considerations and make the decision to/not to provide underfloor suppression based upon their specific circumstances. Such wording would be similar to the consideration already mandated in Subsection 8.4.1 for Gaseous Total Flooring Extinguishing systems.

75- Log #66
(8.1.1.2)

Final Action:

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise text as follows:

8.1.1.2 Where there is a critical need to protect data in the process, reduce equipment damage, and facilitate return to service, consideration shall be given to use either an automatic sprinkler system, carbon dioxide extinguishing system, or inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area. ~~shall be provided.~~

Substantiation: The TC accepted this concept in principle during the 2007 ROC cycle when it added new text to 8.1.1.2 in response to my public comment 75-4 (which requested reconsideration of my original proposal 75-11 to add "where the risk warrants it" at the end of 8.1.1.2). However, the changed proposed by the TC to add language to 8.1.1.2 to refer to "applicable installation standard identified in Section 2.2" did not do as I intended. I therefore submitted a NITNAM to accept my original proposal. The motion was accepted by the assembly at the 2008 annual technical meeting in Las Vegas. However, this change failed subsequent ballot by the TC as many felt the language I provided was too vague. Hence, we're back to language that was created in the 2002 edition. In response to my public comment last cycle, the TC indicated in its committee statement that this issue would be reviewed during the next code cycle. To facilitate this discussion, I have submitted this proposal. The text I've inserted at the beginning of the existing text for 8.1.1.2 is exactly the same text that currently appears in 8.4.1 (reprinted below).

8.4.1 Where there is a critical need to protect data in the process, reduce equipment damage, and facilitate return to service, consideration shall be given to use either an automatic sprinkler system, carbon dioxide extinguishing system, or inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area.

The reason for this proposal is to make underfloor fire suppression mandatory only where there is a critical need to protect data, reduce equipment damage and facilitate return to service. Current text mandates underfloor fire suppression in all cases, which doesn't give due consideration when such a need isn't warranted (e.g., when nothing is installed beneath the raised floor, when wiring within the raised floor space is plenum rated, if power is disconnected to all electrical equipment located beneath the raised floor, etc.). The decision regarding whether to install underfloor fire suppression needs to be determined on a case-by-case basis, depending upon the risk posed to the equipment, and not be a mandatory requirement. This is consistent with the approach taken in 8.4.1. Note: this is (the simpler) one of two proposals I will be submitting to provide some relief to the mandatory underfloor fire suppression requirement. Acceptance of either will meet my intent.

75- Log #90
(8.1.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

8.1.1.2* An automatic sprinkler system, a carbon dioxide extinguishing system, or an inert agent fire extinguishing system for the protection of the area below ~~the a~~ raised floor in an information technology equipment room or information technology equipment area shall be provided when one or more of the following exist:

- (1) The area below the raised floor is used to transport air for equipment cooling or other purposes
- (2) The area below the raised floor is used to distributed power cables, signal cables, or both power and signal cables
- (3) The area below the raised floor contains flammable material

Substantiation: The word “the” is replaced with “a” because the former (definite article) implies that there will always be a raised floor in an Information Technology space, which is simply not the case. Use of the indefinite article “a” implies alternatives. The trend is away from raised floors with equipment mounted directly on the structural floor. Power and signal cables are increasingly run overhead.

NFPA 75 requires sprinklers under raised floors even when there is no flammable material under the floor. This is not consistent with other NFPA automatic fire suppression codes: NFPA 12, NFPA 12A, NFPA 13, or NFPA 2001. This proposed language identifies specific conditions under which fire suppression under the floor makes sense – i.e., when potentially flammable material is present. Requiring fire suppression when there is nothing to burn makes no sense (e.g. chilled water pipes don’t really need fire suppression).

See NFPA 13: “8.15.1.2.2 Concealed spaces of noncombustible and limited-combustible construction with limited access and not permitting occupancy or storage of combustibles **shall not require sprinkler protection** . The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.”

75- Log #64
(8.2.1)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Renumber list entry 8.2.1(3) to be an independent subsection and renumber remaining subsections as required. Add alternative smoke detection configurations.

8.2.1* Automatic detection systems shall be installed in the following locations:

- (1) At the ceiling level throughout the information technology equipment area.
- (2) Below the raised floor of the information technology equipment area containing cables.
- ~~(3) Above the suspended ceiling and below the raised floor in the information technology equipment area where these spaces are used to recirculate air to other parts of the building.~~

8.2.2. Where in the information technology equipment area the space above the suspended ceiling or below the raised access floor is used to circulate air to other parts of the building, automatic smoke detection shall be installed in one of the following locations:

- (1) Throughout the above ceiling or below raised access floor spaces
- (2) At each combination of fire and smoke damper required by 5.5.3
- (3) At other approved locations to detect smoke entering the information technology equipment area

~~8.2.38-2.2~~ (no change)

~~8.2.48-2.3~~ (no change)

Substantiation: The existing passage dictates a single method for smoke detection where air circulates to other areas, eliminating or discouraging alternate methods that may be available that could provide equivalent or superior performance. For installations where no combustible materials are present in the above ceiling space, the requirement fails to provide enhanced protection but does create significant ongoing maintenance requirements. The proposal recognizes and allows alternative methods.

75- Log #91
(8.2.2 (New))

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add a new subparagraph 8.2.2 and renumber subsequent subparagraphs:

8.2.1* Automatic detection systems shall be installed in the following locations:

- (1) At the ceiling level throughout the information technology equipment area
- (2) Below the raised floor of the information technology equipment area containing cables
- (3) Above the suspended ceiling and below the raised floor in the information technology equipment area where these spaces are used to recirculate air to other parts of the building

8.2.2 Automatic smoke and heat detectors shall not be required underneath raised-floor spaces if both of the following conditions exist:

- (1) Space is not accessible for storage purposes or entrance of unauthorized persons
- (2) Space contains no equipment such as steam pipes, electric wiring, shafting, or conveyors.

Substantiation: NFPA 75 requires smoke detectors under raised floors whenever there are cables under the floor. To be clear and to be consistent with NFPA 72, *National Fire Alarm Code*, add a section that says when smoke detectors are not required.

NFPA 72, says

"5.5.2.1.5 Detectors shall not be required... for accessible under-floor spaces if all of the following conditions exist:

- (1) Space is not accessible for storage purposes or entrance of unauthorized persons and is protected against the accumulation of windborne debris.
- (2) Space contains no equipment such as steam pipes, electric wiring, shafting, or conveyors.
- (3) Floor over the space is tight.
- (4) No flammable liquids are processed, handled, or stored on the floor above."

Requirements to Install smoke detectors under raised floors made of non combustibile material and complying with the other requirements of this Standard impose unnecessary expense and provide dubious benefit. Under-floor detectors may actually result in false alarms, thereby increasing the risk of unnecessary IT equipment shutdown and increasing risk to personnel.

75- Log #65
(8.2.3)

Final Action:

Submitter: Randy Willard, National Reconnaissance Office

Recommendation: Insert a new subsection before 8.2.3, renumber current 8.2.3 to 8.2.4:

8.2.3 Where power is required for the operation of the disconnecting means of 10.4.8, that electrical power shall be supervised by the fire alarm control panel.

~~8.2.4~~
~~8.2.3~~ The alarms and trouble signals of automatic detection or extinguishing systems shall be arranged to annunciate at a constantly attended location.

Substantiation: Emergency power disconnects, or emergency power off (EPO) systems, usually require the presence of electrical power to effect the power disconnect such as by tripping relays or shunt trip breakers. If the control power is removed, such as by the inadvertent or intentional opening of a breaker, then the power disconnect system would be rendered inoperable with no indication of such. Emergency disconnects are often separate systems independent of the fire alarm system, so it is unclear if the existing subsection 8.2.2 would apply. The proposal would clearly require the fire alarm system to provide supervisory monitoring of the electrical power to the emergency power disconnect system.

75- Log #92
(8.4.2.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

8.4.2.1 The power to all electronic equipment shall be disconnected upon ~~activation~~ the initiation of a release of a gaseous agent total flooding system, unless the risk considerations outlined in Chapter 4 indicate the need for continuous power.

Substantiation: 8.4.5 requires that an alarm be given warning of a pending discharge and again of an actual discharge. This two-stage alarm process gives an opportunity to have an orderly shut down of power (and of air in some instances) when a gas discharge is imminent. As written, 8.4.2.1 waits to shut down equipment simultaneously with the release the gas (i.e. second stage). The proposed wording would allow the shutdown process to start with the first stage alarm. This “soft shutdown” could prevent loss of data and possibly damage to electronic equipment.

A.8.1.2 supports this concept. See also discussions in: A.8.4.3; A.8.4.4; and A.8.4.5.

75- Log #72
(8.4.3)

Final Action:

Submitter: Abhay Nadgir, Kidde-Fenwal, Inc.

Recommendation: Revise text as follows:

8.4.3* Gaseous agent systems shall be automatically actuated by an approved method of detection meeting the requirements of *NFPA 72, National Fire Alarm Code*, and a listed releasing device compatible with the system. A minimum of two independent smoke detection devices shall be used and at least two shall be required to be in alarm to actuate the releasing device. Multiple smoke alarm levels originating from the same smoke detection device shall not be considered as equivalent.

Substantiation: One of the reasons for using cross-zone and counting-zone smoke detection schemes in the release of clean agent suppression systems is to confirm and validate alarm activation from two independent, geographically spaced initiating devices. This principle safeguards against unwanted actuations of suppression systems that are caused by a single point failure of, and/or physical damage to the alarm initiating devices. Cross-zone smoke detection scheme also provides a way to confirm and validate alarm activation using two distinct detection technologies (Ionization Smoke Detection Principle and Photoelectric Smoke Detection Principle).

While Air Sampling Smoke Detection technology allows for several levels of smoke alarm, the use of two smoke obscuration levels (alarm levels) from the same Air Sampling Detector to trigger the release of clean agent suppression systems does NOT provide the alarm confirmation and validation benefits afforded by cross-zone and counting-zone detection schemes. In fact, both alarm inputs from an Air Sampling Detector A) use the same detection technology, B) and are provided by physically the same device.

When a single Air sampling detector is used to release clean agent suppression systems, either a physical damage to the piping network, a localized dust exposure or a failure in the electronics can lead to multi-level alarm activations; hence triggering the inadvertent release of suppression systems.

75- Log #93
(8.4.3 and A.8.4.3 (New))

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Insert a new paragraph 8.4.3 and renumber subsequent sub-paragraphs.

8.4.3* Hot aisle or cold aisle containment systems shall not obstruct the free flow of gaseous clean agent suppression systems into to the IT equipment or cooling system serving the contained aisle within an information technology equipment room or zone.

Create a new Annex A section for 8.4.3.

A.8.4.3 Various methods of isolating the aisles between rows of equipment racks, known as hot-aisle or cold-aisle containment, are employed to prevent mixing of hot exhaust air or cold intake air through the information technology equipment. In the event that a fire triggers the release of a clean agent gaseous suppression system, the gas suppressant should be able to penetrate all of the IT equipment. In most cases of whole room total flooding systems the flow of air through the IT equipment would normally be sufficient to satisfy this requirement, but the method should be evaluated on a case-by-case basis.

Substantiation: Aisle containment is being widely adopted as a highly efficient method of cooling a data center. In some cases the hot aisle is contained in order to route hot exhaust air back to the cooling units, which may be in the equipment rows, overhead, or elsewhere in the space. In other cases the cold aisle is contained. Both designs are intended to prevent the flow of bypass air and mixing of cool intake and hot exhaust air.

Containment can be permanent (hardwall) or temporary (softwall). Permanent features can include doors at the end of aisles and removable ceiling sections over the aisles. Tests have shown that whole room flooding easily penetrates such construction through the IT equipment, which is deliberately designed to move air through the equipment. It is also possible to pipe gaseous suppression agent directly into the contained space, which will then flow through the equipment in the opposite direction if the equipment fans are shut down prior to discharge.

Temporary containment typically consists of "curtains" hung from the dropped ceiling. Because this method potentially blocks the spray or gas flow from ceiling-mounted fire suppression heads, some designs include a fusible link to automatically drop the curtains when temperature reaches a certain threshold.

The proposed text for new paragraph 8.4.3 simply requires that any aisle containment must not block the flow of gaseous suppression agent to the IT equipment.

The proposed corresponding Annex clarifies that a total flooding system would normally be sufficient to penetrate contained aisles, but the AHJ should evaluate each installation because many are customized and site-specific solutions. It also clarifies that a contained aisle might be designated as a "zone", which is permitted by the NEC in Article 645. A zone must be able to be isolated both electrically and mechanically (meaning that articles of combustion must be confined to the zone).

75- Log #73
(8.4.6 (New))

Final Action:

Submitter: Abhay Nadgir, Kidde-Fenwal, Inc.

Recommendation: Add new text as follows:

8.4.6 Releasing service fire alarm systems used for fire-suppression-releasing service shall be provided with a listed disconnect switch to allow the system to be tested without actuating the fire suppression system.

8.4.6.1 Operation of a disconnect switch or a disable function shall cause a supervisory signal at the releasing service fire alarm control unit and a disabled indication local to the switch.

8.4.6.2 The disconnect shall be a physical keyed switch and not be accomplished using software.

8.6.4.3 The key shall be located in proximity of the agent containers and shall not be removable when the suppression system is disabled

Substantiation: The additional language will align the disconnect switch requirements of NFPA 75 with those of NFPA 72. The keyed-access type will ensure that only authorized personnel with proper access can disable the suppression system.

The agent cylinders and their releasing control unit may not always be in line of sight or installed in proximity of each other for the disablement of the suppression system to be visible from the cylinders. The addition of indication local to the switch and cylinders mitigates errors in testing and consequently in unintended discharges.

If a fire occurs when the Key Switch is operated for maintenance or service purposes, the need to quickly restore the system back into operational conditions is critical. A non-removable key will ensure the key is locally present and readily operable.

75- Log #78
(9.1)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

9.1* Protection Required for Records Within the Information Technology Equipment Room.

Any records regularly kept or stored in the information technology equipment room shall be provided with the following protection:

(1) Vital or important records that have not been duplicated shall be stored in listed record protection equipment with a Class 150 1-hour or better fire resistance rating as outlined in ANSI/UL 72, Standard for Tests for Fire Resistance of Record Protection Equipment.

(2) All other records shall be stored in closed metal files or cabinets.

Substantiation: Add ANSI approval designation to ANSI/UL 72.

75- Log #94
(9.2.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

9.2.2 Portable extinguishing equipment and hose lines for whichever is installed in record storage rooms or areas, shall be installed in accordance with 8.3.1 through 8.3.5.

Substantiation: As written, 9.2.2 requires BOTH portable fire extinguishers AND hose lines: "Portable extinguishing equipment and hose lines... shall be installed... This is not the intent. The proposed language states that whichever method is used it shall follow the standard.

75- Log #95
(10.1.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

10.1.1 Dampers in HVAC systems serving information technology equipment areas shall operate upon activation of smoke detectors and by operation of the disconnecting means, when required by 10.4.8.* The automatic fire and smoke dampers required by 5.5.3 shall also operate upon activation of smoke detectors and by operation of disconnecting means required by 10.4.8.*

Substantiation: Per NEC-2011, a disconnecting means is not always required. Revise the text to indicate that, when a disconnecting means is installed, its operation will cause the dampers to close.

75- Log #96
(10.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

10.1.2 ~~Either a~~ Air ducts serving other rooms shall be installed in one of the following manners:

(1) Air ducts shall not pass through the information technology equipment area; or

(2) f Fire dampers shall be provided in the ducts.

Substantiation: Editorial change. Rearrange per Style Manual and for clarity. Multiple requirements should be itemized.

75- Log #15
(10.1.3)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text to read as follows:

10.1.3 All duct insulation and linings, including vapor barriers and coatings, shall have a flame spread index of 25 or less without evidence of continued progressive combustion and a smoke developed index no higher than 50, in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*; or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*.

Substantiation: NFPA 255 has been withdrawn.

75- Log #79
(10.1.3)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

10.1.3 All duct insulation and linings, including vapor barriers and coatings, shall have a flame spread index of 25 or less without evidence of continued progressive combustion and a smoke developed index no higher than 50, in accordance with ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials~~, ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*; or ANSI/UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*.

Substantiation: NFPA 255 was withdrawn in the Fall 2009. ANSI approval designation is added to ANSI/UL 723.

75- Log #80
(10.1.4)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

10.1.4* Air filters for use in air-conditioning systems shall ~~have a Class 1 rating in accordance with~~ comply with the requirements of ANSI/UL 900, Standard for Air Filter Units.

Substantiation: Add ANSI approval designation to ANSI/UL 900. Performance requirements of UL 900 have been revised and are no longer separated into multiple classifications.

75- Log #47
(10.3)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Deleted text to read as follows:

10.3* Electrical Service.

This section covers equipment, power-supply wiring, equipment interconnecting wiring, and grounding of information technology equipment and systems, ~~including terminal units~~, in an information technology equipment room. [70:645.1]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #97
(10.3)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

This section covers equipment, power-supply wiring, equipment interconnecting wiring, and grounding of information technology equipment and systems, ~~including terminal units~~, in an information technology equipment room. [70:645.1]

Substantiation: Per NEC-2011 Proposal 12-121, there is no need to include the phrase “terminal units” from among the many types of IT equipment. It suggests that monitors and computer displays should be held to a different standard. This is not original material; its reference/source is as follows:

ROP - June 2010, Proposal 12-121, CMP-12 Article 645 Task Group

75- Log #16
(10.3.1)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text to read as follows:

10.3.1 All wiring shall conform to *NFPA 70, National Electrical Code*. Wiring in an air space below a raised floor ~~or above a suspended ceiling~~ shall conform to Article 645 of NFPA 70 where such space is used to circulate information technology equipment area environmental air.

Substantiation: NEC Article 645 does not cover wiring above a suspended ceiling (in a ceiling cavity plenum), only under raised floors (in a raised floor plenum), see 645.5(D) in the 2008 edition of the NEC. See also 645.3(B) in the 2011 NEC.

75- Log #98
(10.3.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

10.3.1 All wiring shall conform to *NFPA 70, National Electrical Code*. Wiring in an air space below a raised floor ~~or above a suspended ceiling~~ shall conform to Article 645 of NFPA 70 where such space is used to circulate information technology equipment area environmental air.

Substantiation: Wiring above a suspended ceiling (i.e., in a ceiling cavity plenum) is not addressed in NEC Article 645. Article 645 only addressed wiring under raised floors (in a raised floor plenum). Wiring and cabling in ceiling cavity plenums is covered in NEC Sections 300.22(C)(1); 725.154(A); 760.53(B)(2); 760.154(A); and 770.154(A).

See:

645.5(D) in the 2008 edition of the NEC.

Proposed 645.3(B) in the 2011 edition of the NEC

This is not original material; its reference/source is as follows:

NEC ROP 12-131; ROC 12-77, CMP-12 Article 645 Task Group

75- Log #17
(10.3.2)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text to read as follows:

10.3.2* Premise transformers installed in the information technology equipment area shall be of the dry type or type filled with a noncombustible dielectric medium. Such transformers shall be installed in accordance with the requirements of Article 450 of NFPA 70, National Electrical Code.

Substantiation: The NEC is a big book. It would be helpful to the users NFPA 75 if the references to the NEC were as specific as possible.

75- Log #18
(10.3.4)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text to read as follows:

10.3.4* Protection against lightning surges shall be provided in accordance with the requirements of Articles 280 and 285 of NFPA 70, National Electrical Code.

Substantiation: The NEC is a big book. It would be helpful to the users NFPA 75 if the references to the NEC were as specific as possible.

Perhaps a reference to NFPA 780, Standard for the Installation of Lightning Protection Systems would also be appropriate.

75- Log #19
(10.3.5)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text as follows:

10.3.5* Installation of junction boxes shall comply with Article 314 of NFPA 70, *National Electrical Code*. Junction boxes shall be approved, completely enclosed, fastened, accessible, and grounded. No splices or connections shall be made in the underfloor area except within junction boxes or approved-type receptacles and connectors.

Substantiation: Reference to NEC Article 314, Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Handhole Enclosures, provides needed details on the installation of junction boxes.

75- Log #20
(10.3.6)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text to read as follows:

10.3.6 Emergency lighting installed on compliance with Article 700, *Emergency Systems*, of NFPA 70, *National Electrical Code*, shall be provided in the information technology equipment area.

Substantiation: Reference to NEC Article 700, Emergency Systems, provides needed details on the installation of emergency lighting.

75- Log #21
(10.3.7 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.7 Spread of Fire or Products of Combustion. Sections 300.21, 770.26, 800.26, and 820.26 of NFPA 70, *National Electrical Code*, shall apply to penetrations of the fire resistant room boundary. [70:645.3(A)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #22
(10.3.8 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.8 Plenums. Sections 300.22(C)(1), 725.154(A), 760.53(B)(2), 760.154(A), 770.113(C), 800.113(C), 820.113(C) & 820.154(A) and Tables 770.154(A), 800.154(A) and 820.154(A) of NFPA 70, *National Electrical Code*, shall apply to wiring and cabling in a plenum (other space used for environmental air) above an information technology equipment room. [70:645.3(B)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #23
(10.3.9 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.9 Grounding. The non-current-carrying conductive members of optical fiber cables in an information technology equipment room shall be grounded in accordance with 770.114 of NFPA 70, *National Electrical Code*. [70:645.3(C)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #24
(10.3.10 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.10 Electrical Classification of Data Circuits. NFPA 70, *National Electrical Code*. Sections 725.121(A)(4) shall apply to the electrical classification of listed information technology equipment signaling circuits. 725.139(D)(1), and 800.133(A)(1)(b) shall apply to the electrical classification of Class 2 and Class 3 circuits in the same cable with communications circuits. [70:645.3(D)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #25
(10.3.11 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.11 Fire Alarm Equipment. Parts I, II, & III of Article 760 of NFPA 70, *National Electrical Code*, shall apply to fire alarm systems equipment installed in an information technology equipment room. [70:645.3(E)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #26
(10.3.12 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.12 Communications Equipment Parts I, II, III, IV & V of Article 800 of NFPA 70, *National Electrical Code*, shall apply to communications equipment installed in an information technology equipment room. Article 645 shall apply to the powering of communications equipment in an information technology equipment room. [70:645.3(F)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #27
(10.3.13 (New))

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: New text to read as follows:

10.3.13 Community Antenna Television and Radio Distribution Equipment. Parts I, II, III, IV & V of Article 820 of NFPA 70, *National Electrical Code*, shall apply to community antenna television and radio distribution systems equipment installed in an information technology equipment room. Article 645 shall apply to the powering of community antenna television and radio distribution systems equipment installed in an information technology equipment room.[70:645.3(G)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #101
(10.4 and A.10.4)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Delete ALL of paragraph 10.4, including all sub-paragraphs and all associated text.

~~10.4 Supply Circuits and Interconnecting Cables [70:645.5]~~

~~10.4.1 Branch-Circuit Conductors [70:645.5(A)]~~

~~10.4.2 Cord-and-Plug Connections [70:645.5(B)]~~

~~10.4.3* Interconnecting Cables [70:645.5(C)]~~

~~10.4.4* Under Raised Floors. [70:645.5(D)]~~

~~10.4.4(1)~~

~~10.4.4(2)~~

~~10.4.4(3)~~

~~10.4.4(4)~~

~~10.4.4(5)~~

~~10.4.4(6)~~

~~(a)~~

~~(b)~~

~~(c)~~

~~10.4.5* Abandoned Supply Circuits and Interconnecting Cables [70:645.5(F)]~~

~~10.4.6 Securing in Place [70:645.5(E)]~~

~~10.4.7* Cables Not in Information Technology Equipment Room [70:645.6]~~

~~10.4.8 Disconnecting Means [70:645.10]—10.4.8(1)~~

~~10.4.9 Uninterruptible Power Supplies (UPS) [70:645.11]—10.4.9(1)~~

~~10.4.10 Grounding [70:645.15]~~

~~10.4.11 Marking [70:645.16]~~

~~A.10.4.3~~

~~A.10.4.4~~

~~A.10.4.5~~

~~A.10.4.6~~

~~A.10.4.7~~

~~A.10.4.9.1~~

~~A.10.4.10.~~

Substantiation: Paragraph 10.3.1 already states that all wiring shall conform to NFPA 70, and all wiring below a raised floor shall conform to NFPA 645. There is no need to duplicate word-for-word what is already in the NEC. NFPA 70 and NFPA 75 are in different cycles, so when changes are made to the NEC (which is the case with Article 645 in this case), the two documents are no longer harmonized and may actually conflict. Delete the text that is redundant to the NEC and keep only that text that adds new or supporting material. The requirements are already made mandatory by reference to the NEC.

75- Log #28
(10.4.1)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text to read as follows:

10.4.1 Branch-Circuit Conductors. The branch-circuit conductors supplying one or more units of information technology equipment ~~a data processing system~~ shall have an ampacity not less than 125 percent of the total connected load. [70:645.5(A)].

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #48
(10.4.1)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revise text to read as follows:

10.4.1 Branch-Circuit Conductors. The branch-circuit conductors supplying one or more units of a ~~data processing system~~ information technology equipment shall have an ampacity not less than 125 percent of the total connected load. [70:645.5(A)]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #37
(10.4.2)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revise text as follows:

10.4.2 Power Supply Cords. Cord-and-Plug Connections. ~~Information technology equipment~~ The data processing system shall be permitted to be connected to a branch circuit by a power supply cord, any of the following listed means:
 (1) Power supply cords shall not Flexible cord and attachment plug cap not to exceed 4.5 m (15 ft).
 (2) Power cords shall be listed and a type permitted for use on listed information technology equipment or shall be constructed of listed flexible cord and listed attachment plugs and cord connectors of a type permitted for information technology equipment. Cord set assembly, where run on the surface of the floor, shall be protected against physical damage. [70:645.5(B)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #49
(10.4.2)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revise text to read as follows:

10.4.2* Cord-and-Plug Connections. The ~~data processing information technology equipment~~ system shall be permitted to be connected to a branch circuit by any of the following listed means:

(1) ~~Power cords shall not Flexible cord and attachment plug cap not to~~ exceed 4.5 m (15 ft).

(2) ~~Cord set assembly, where run on the surface of the floor, shall be protected against physical damage. Power cords shall be listed and suitable for information technology equipment.~~

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #99
(10.4.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

10.4.2 ~~Power Supply Cords. Cord-and-Plug Connections.~~ The ~~data processing system~~ Information technology equipment shall be permitted to be connected to a branch circuit by a power supply cord. ~~any of the following listed means:~~

(1) ~~Power supply cords shall not Flexible cord and attachment plug cap not to~~ exceed 4.5 m (15 ft).

(2) ~~Power cords shall be listed and a type permitted for use on listed information technology equipment or shall be constructed of listed flexible cord and listed attachment plugs and cord connectors of a type permitted for information technology equipment. Cord set assembly, where run on the surface of the floor, shall be protected against physical damage.~~ [70:645.5(B)]

Substantiation: Correlate with proposed NEC-2011, 645(B)(2).

This is not original material; its reference/source is as follows:

NFPA 70-2011 ROP 12-139, CMP-12 Article 645 Task Group. NFPA 70-2011 ROC 12-89

75- Log #38
(10.4.3)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revise text as follows:

10.4.3* Interconnecting Cables. Separate information technology equipment ~~data processing~~ units shall be permitted to be interconnected by means of listed cables and cable assemblies. The 4.5 m (15 ft) limitation in (B) shall not apply to interconnecting cables Where exposed to physical damage, the installation shall be protected by approved means.

[70:645.5(C)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #100
(10.4.3)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

10.4.3* Interconnecting Cables. Separate data processing units, equipment racks, or cabinets shall be permitted to be interconnected by means of listed cables and cable assemblies. Where exposed to physical damage, the installation shall be protected by approved means. [70:645.5(C)]

Substantiation: The term "data processing unit" is not defined but is assumed to be a single item of electronic equipment. In some cases single, floor-standing devices are used, but more commonly the electronic devices are clustered into equipment racks or equipment cabinets. Usually the devices in a rack or cabinet receive power from a rack-mounted ITE power strip connected via interconnect cable to a branch circuit breaker in a power distribution unit (PDU). Dual input or multiple input power supplies are common, in which case each input (A-feed, B-feed, or C-feed) is powered by a separate ITE power strip, each of which is powered by a separate branch circuit from a PDU.

75- Log #50
(10.4.3.1)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revise text to read as follows:

10.4.3.1* Separate data processing information technology equipment units shall be permitted to be interconnected by means of listed cables and cable assemblies.

A.10.4.3.1 The 4.5 m (15 ft) limitation in (B) does not apply to interconnecting cables.

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #51
(10.4.3.2)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revise text to read as follows:

10.4.3.2 Physical Protection. Where exposed to physical damage, ~~the installation~~ supply circuits and interconnecting cables shall be protected by approved means.

[70:645.5(C)]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #29
(10.4.4)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.4 to 10.4.5 and insert a new 10.4.4.

10.4.4 Physical Protection. Where exposed to physical damage, supply circuits and interconnecting cables shall be protected. [70:645.5(D)]

Substantiation: Note: Supporting material is available for review at NFPA Headquarters.

75- Log #52
(10.4.4)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: New text to read as follows:

10.4.4* Under Raised Floors. Power cables, communications cables, connecting cables, interconnecting cables, cord-and-plug connections, and receptacles associated with the information technology equipment shall be permitted under a raised floor, provided the following conditions are met:

(1) The raised floor is of suitable construction, and the area under the floor is accessible.

(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable. These supply conductors shall be installed in accordance with the requirements of NFPA 70, National Electrical Code, Section 300.11.

Exception: Compliance with 300.11(A) shall not be required when raceway is supported by the floor of the building under the raised floor.

(Remainder of section remains the same)

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #39
(10.4.4 and A.10.4.4)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber the existing 10.4.4 to 10.4.5 and revise it as shown. Also renumber the existing A.10.4.4 to A.10.4.5.

~~10.4.4~~* 10.4.5* Under Raised Floors. Power cables, communications cables, connecting cables, interconnecting cables, cord-and plug connections, and receptacles associated with the information technology equipment shall be permitted under a raised floor, provided the following conditions are met:

(1) The raised floor is of suitable construction, and the area under the floor is accessible.

(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable, and associated metallic and nonmetallic boxes or enclosures. These supply conductors shall be installed in accordance with the requirements of *NFPA 70, National Electrical Code*, Section 300.11.

(3) Supply cords of listed information technology equipment in accordance with *NFPA 70, National Electrical Code*, 645.5(B).

(4) Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in *NFPA 70, National Electrical Code*, 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

(5) Openings in raised floors for cords and cables protect cords and cables against abrasions and minimize the entrance of debris beneath the floor

(6) Cables, other than those covered in (2) and (3) and those complying with (a), (b), and (c), shall be listed as Type DP cable having adequate fire-resistant characteristics suitable for use under raised floors of an information technology equipment room

(a) Interconnecting cables enclosed in a raceway.

~~(b) Interconnecting cables listed with equipment manufactured prior to July 1, 1994, being installed with that equipment. Cable type designations shown in Table 10.4.4. shall be permitted. Green, or green with one or more yellow stripes, insulated single-conductor cables, 4 AWG and larger, marked "for use in cable trays" or "for CT use" shall be permitted for equipment grounding.~~

*****Table 10.4.4 [insert Table 645.5 from 2008 NEC here.]*****

~~(c) Cable type designations Type TC (NFPA 70, Article 336), Types CL2, CL3, and PLTC (NFPA 70, Article 725), Type ITC (NFPA 70, Article 727), Types NPLF and FPL (NFPA 70, Article 760), Types OFC and OFN (NFPA 70, Article 770), Types CM and MP (NFPA 70, Article 800), and Type CATV (NFPA 70, Article 820). These designations shall be permitted to have an additional letter P or R or G. Green, or green with one or more yellow stripes, insulated single-conductor cables, 4 AWG and larger, marked "for use in cable trays" or "for CT use" shall be permitted for equipment grounding.~~

[70:645.5(EB)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #53
(10.4.5)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Delete text to read as follows:

10.4.5* Abandoned Supply Circuits and Interconnecting Cables. The accessible portion of abandoned supply circuits and interconnecting cables shall be removed unless contained in a ~~metal~~ raceway. [70:645.5(F)]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #40
(10.4.5 and A.10.4.5)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.5 to 10.4.6 and revise it as shown. Also renumber existing A.10.4.5 to A.10.4.6.

~~10.4.5*~~ **10.4.6*** Abandoned Supply Circuits and Interconnecting Cables. The accessible portion of abandoned supply circuits and interconnecting cables shall be removed unless contained in a ~~metal~~ raceway. [70:645.5(~~F~~)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #41
(10.4.6)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.6 to 10.4.7 and revise it as shown:

~~10.4.6~~ **10.4.7** Securing in Place. Power cables; communications cables; connecting cables; interconnecting cables; and associated boxes, connectors, plugs, and receptacles that are listed as part of, or for, information technology equipment shall not be required to be secured in place. [70:645.5(~~FF~~)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #42
(10.4.7 and A.10.4.7)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.7 to 10.4.9. Also renumber existing A.10.4.7 to A.10.4.9.

~~10.4.7*~~ **10.4.9*** Cables Not in Information Technology Equipment Room. Cables extending beyond the information technology equipment room shall be subject to the applicable requirements of *NFPA 70, National Electrical Code*. [70:645.6]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #31
(10.4.8)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.8 to 10.4.10 and insert a new 10.4.8 as shown:

10.4.8 Installed Supply Circuits and Interconnecting Cables Identified for Future Use.

(1) Supply circuits and interconnecting cables identified for future use shall be marked with a tag of sufficient durability to withstand the environment involved.

(2) Supply circuit tags and interconnecting cable tags shall have the following information:

a. Date identified for future use

b. Date of intended use

c. Information relating to the intended future use

[70:645.5(H)]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #43
(10.4.8)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.8 to 10.4.10 and revise as shown:

~~10.4.8~~ **10.4.10 Disconnecting Means.** An approved means shall be provided to disconnect power to all electronic equipment in the information technology equipment room or in designated zones within the room. There shall also be a similar approved means to disconnect the power to all dedicated HVAC systems serving the room or designated zones and shall cause all required fire/smoke dampers to close. ~~The control for these disconnecting means shall be grouped and identified and shall be readily accessible at the principal exit doors. A single means to control both the electronic equipment and HVAC systems in the room or in a zone shall be permitted. Where a pushbutton is used as a means to disconnect power, pushing the button in shall disconnect the power. Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone. Exception: Installations qualifying under the provisions of NFPA 70, National Electrical Code, Article 685. Disconnecting means shall be implemented by either (A) or (B).~~

(A) Remote Disconnect Controls.

- (1) Remote disconnect controls shall be located at approved locations readily accessible in case of fire to authorized personnel and emergency responders.
- (2) The remote disconnect controls for the control of electronic equipment power and HVAC systems shall be grouped and identified. A single means to control both shall be permitted.
- (3) Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone.
- (4) Additional means to prevent unintentional operations of remote disconnect controls shall be permitted.

(B) Critical Operations Data Systems. Remote disconnecting controls shall not be required for critical operations data systems when all of the following are met:

- (1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.
- (2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.
- (3) A smoke-sensing fire detection system is in place.
- (4) An approved fire suppression system suitable for the application is in place.

(A) Remote Disconnect Controls

- (1) Remote disconnect controls shall be located at approved locations readily accessible in case of fire to authorized personnel and emergency responders.
- (2) The remote disconnect controls for the control of electronic equipment power and HVAC systems shall be grouped and identified. A single means to control both shall be permitted.
- (3) Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone.
- (4) Additional means to prevent unintentional operations of remote disconnect controls shall be permitted.

(B) Critical Operations Data Systems. Remote disconnecting controls shall not be required for critical operations data systems when all of the following are met:

- (1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.
- (2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.
- (3) A smoke-sensing fire detection system is in place.
- (4) An approved fire suppression system suitable for the application is in place.

[70:645.10]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #54
(10.4.8)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Delete text to read as follows:

~~10.4.8 Disconnecting Means. An approved means shall be provided to disconnect power to all electronic equipment in the information technology equipment room or in designated zones within the room. There shall also be a similar approved means to disconnect the power to all dedicated HVAC systems serving the room or designated zones and shall cause all required fire/smoke dampers to close. The control for these disconnecting means shall be grouped and identified and shall be readily accessible at the principal exit doors. A single means to control both the electronic equipment and HVAC systems in the room or in a zone shall be permitted. Where a pushbutton is used as a means to disconnect power, pushing the button in shall disconnect the power. Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone.~~

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #55
(10.4.8)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: New text to read as follows:

10.4.8 Disconnecting Means. An approved means shall be provided to disconnect power to all electronic equipment in the information technology equipment room or in designated zones within the room. There shall also be a similar approved means to disconnect the power to all dedicated HVAC systems serving the room or designated zones and shall cause all required fire/smoke dampers to close. Disconnecting means shall be implemented by either (A) or (B) below.

Exception: Installations qualifying under the provisions of Article 685.

(A) Remote Disconnect Controls

(1) Remote Disconnect Controls shall be located at approved locations readily accessible in case of fire to authorized personnel and emergency responders.

(2) The Remote Disconnect Controls for the control of electronic equipment power and HVAC systems shall be grouped and identified. A single means to control both shall be permitted.

(3) Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone.

(4) Additional means to prevent unintentional operations of remote disconnect controls shall be permitted.

(B) Remote disconnecting controls shall not be required for critical operations data systems when all of the following are met:

(1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.

(2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.

(3) A smoke-sensing fire detection system is in place.FPN - For further information see NFPA 72-2007, National Fire Alarm Code

(4) An approved fire suppression system suitable for the application is in place.

(5) Cables installed under a raised floor, other than branch circuit wiring and power cords installed in compliance with 645.5(D)(2) or (3), are in compliance with 300.22(C), 725.154(A), 770.154(A), or 800.154(A). [70:645.10]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #32
(10.4.8.1)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.8.1 to 10.4.10.1.

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #44
(10.4.9)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.9 to 10.4.11 and revise the text as shown:

~~10.4.9~~ **10.4.11 Uninterruptible Power Supplies (UPS)**. Except for installations and constructions covered in ~~10.4.9(1)~~ 10.4.11(1) or ~~10.4.9(2)~~ 10.4.11(2), UPS systems installed within the information technology room, and their supply and output circuits, shall comply with ~~10.4.8~~ 10.4.10. The disconnecting means shall also disconnect the battery from its load.

(1) Installations qualifying under the provisions of *NFPA 70, National Electrical Code*, Article 685

(2) Power sources limited to 750 volt-amperes or less derived either from UPS equipment or from battery circuits integral to electronic equipment [70:645.11]

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #30
(10.4.9.1 and A.10.4.9.1)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.9.1 to 10.4.11.1. Also renumber existing A.10.4.9.1 to A.10.4.11.1.

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #56
(10.4.9(2))

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: Revise text to read as follows:

10.4.9(2), UPS systems installed within the information technology room, and their supply and output circuits, shall comply with 10.4.8. Where remote disconnecting controls are used, the disconnecting means shall also disconnect the battery from its load.

(1) Installations qualifying under the provisions of NFPA 70, National Electrical Code, Article 685

(2) Power sources limited to 750 volt-amperes or less derived either from UPS equipment or from battery circuits integral to electronic equipment [70:645.11]

10.4.9.1* Storage battery systems in the information technology equipment area shall comply with the requirements of NFPA 70, National Electrical Code, Article 480.

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #33
(10.4.10 and A.10.4.10)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.10 to 10.4.12. Also renumber existing A.10.4.10 to A.10.4.12

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #34
(10.4.11)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Renumber existing 10.4.11 to 10.4.13.

Substantiation: This proposal is one in a series of proposals to update the extracts from NEC Article 645 in Chapter 10 of NFPA 75.

75- Log #69
(A.1.2)

Final Action:

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise text as follows:

A.1.2 This standard does not cover installation of information technology equipment and information technology equipment areas that can be made without special construction or protection or space outside the information technology equipment area. It can, however, be used as a management guide for the installation of electrically powered mechanical information technology equipment, small tabletop or desk-type units, and information technology equipment.

Substantiation: To clarify that NFPA 75 is not meant to offer any consideration or protection to spaces located outside of or proximate to the IT equipment area.

75- Log #70
(A.5.1.3)

Final Action:

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise text as follows:

A.5.1.3 Experience with fires affecting information technology equipment rooms has demonstrated that the fire often starts in areas other than the information technology equipment area and that the fire and its related products, including smoke, soot, and heat, can enter the information technology equipment room if it is not adequately separated by sealed, rated walls. Consideration should be given to raising the rating of perimeter walls to 2 hours where adjacent walls already rated 2 hours or greater.

The prudent facilities manager would do well to limit the exposure fire hazard by locating an information technology equipment facility in a fully sprinklered building and installing self-contained HVAC systems within the information technology area

Rest unchanged.

Substantiation: Though 10.1 permits HVAC systems to serve other occupancies outside the information technology area, this may not be desired. The annex note is intended to flag this.

Note this could also be inserted as new language for A.5.5.3 and tied to 5.5.3 or as new language for A.10.1 tied to 10.1.

75- Log #102
(A.5.1.3)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

Information technology equipment rooms ~~normally~~ frequently have a raised floor.

Substantiation: This statement may not be true or may not be true much longer. It is very common for ITE rooms of less than 5000 square feet to be on a slab, and many large data centers are moving away from raised floors. Within the cycle time of NFPA 75 it is likely that the majority of new ITE rooms will not be on raised floors.

75- Log #103
(A.5.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

The information technology equipment area should be located to minimize exposure to fire, water, corrosive fumes, heat, and smoke from adjoining areas and activities. Battery rooms, when constructed and ventilated in accordance with NFPA 1 Fire Code, may be adjacent to the information technology equipment room.

Substantiation: Despite the fact that battery rooms are not considered to be classified (hazardous) locations by the Fire Code, some AHJs still feel that they are a special category requiring higher than normal precautions. This proposal clarifies that situating a battery room next to an ITE room that meets the requirements of this Standard is permissible, and would not be disallowed by paragraph 5.2.

75- Log #112
(A.5.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

Many information technology equipment installations have become prime targets for sabotage and arson. The location and construction should be designed to minimize the possibility of penetration by an explosive or incendiary device. It is essential that access be restricted to only those persons absolutely necessary to the operation of the equipment. A controlled-access system of admittance through positive identification should be maintained at all times. For additional guidance, see: NFPA 730, Guide for Premises Security, and NFPA 731, Standard for the Installation of Electronic Premises Security Systems.

Substantiation: Add references to applicable NFPA standards on the topic of access security.

75- Log #105
(A.5.4.4)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add new text as follows:

A.5.4.4 Openings in raised floors for electric cables or other uses should be protected to minimize the entrance of debris or other combustibles, and to avoid air pressure drop when the space is used for movement of air.

Substantiation: When a raised floor is used to distribute cooling air, loss of air pressure under a floor (because of removed floor tiles or parasitic losses through cable openings and other means) can result in inadequate cooling to some parts of the space and potentially to overheating of electronic equipment.

75- Log #35
(A.7.1.4)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Revised text to read as follows:

A.7.1.4* See ~~NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.~~ ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials; or UL 723, Standard for Test for Surface Burning Characteristics of Building Materials.

Substantiation: NFPA 255 has been withdrawn.

75- Log #106
(A.8.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

A.8.1.2 In facilities that are under the supervision of an operator or other person familiar with the equipment, during all periods that equipment is energized, the normal delay between the initial outbreak of a fire and the operation of a sprinkler system will provide adequate time for operators to shut down the power by use of the emergency shutdown procedures ~~switches~~ as prescribed in ~~Section 10.4~~ NFPA 70 Article 645. In other instances where a fire can operate sprinkler heads before discovery by personnel, a method of automatic detection should be provided to automatically de-energize the electronic equipment as quickly as possible.

Substantiation: The “disconnecting means” required in earlier versions of the NEC are not necessarily “switches,” so use of that term would be incorrect. NEC-2011 will include allowance for ITE rooms to have no disconnecting means when other criteria are met, including implementation of emergency shutdown procedures by trained personnel.

75- Log #45
(A.10.4.2)

Final Action:

Submitter: Ronald Marts, Telcordia Technologies

Recommendation: New Text to read as follows:

A.10.4.2 One method of determining cords are suitable for the purpose is found in UL 60950 *Standard for Information Technology Equipment – Safety – Part 1* [70:645.5(B)]

Substantiation: This proposal is one of several that update Chapter 10 to coincide with recent approved changes in Article 645 of the NEC.

75- Log #81
(A.10.4.4)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

A.10.4.4 One method of defining fire resistance is by establishing that the cables do not spread fire to the top of the tray in the “Vertical Tray Flame Test” referenced in ANSI/UL 1581, Standard for Electrical Wires, Cables, and Flexible Cords. Another method of defining fire resistance is for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the CSA “Vertical Flame Test — Cables in Cable Trays,” as described in CSA C22.2 No. 0.3 96, Test Methods for Electrical Wires and Cables.

Substantiation: Add ANSI approval designation to ANSI/UL 1581.

75- Log #107
(A.10.4.9.1)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

A.10.4.9.1 The installation of ~~certain~~ some types of storage battery systems can create concerns about a hydrogen gas ~~generation~~ accumulation, ~~concern~~, a fire load, ~~concern~~, and an or acid spill hazard. For these installations, the design of the facilities to mitigate these hazards is appropriate.

Substantiation: Not all batteries have all of the concerns itemized here. Vented lead-acid batteries and vented nickel cadmium batteries, for example, will have all the concerns. But Lithium-ion batteries may have only one or none of the concerns. Hydrogen generation is a normal electrochemical process internal to some types of batteries and by itself is not a concern. The concern is when hydrogen escapes from the battery and accumulates into concentrations at which it becomes flammable. “Design of the facilities to mitigate these hazards” would include appropriate ventilation in accordance with applicable fire and mechanical codes.

75- Log #109
(A.11.1(7) (New))

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add new text as follows:

(7) Coordination with the fire department or other emergency responders.

Substantiation: Add another item to the list of things to include in a written emergency fire plan. NEC-2011 Article 645 will stipulate that one of the requirements for critical ITE spaces is for designated personnel to meet the fire department when it arrives at the scene of a fire, to appraise the fire fighters of the situation, and to advise or assist them in the methods of power shutdown for the affected area or zone.

75- Log #108
(Figure A.11.1.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

Symbol : ~~EPO~~ DM IT and HVAC equipment ~~emergency power off switch~~ disconnecting means

Substantiation: The drawing uses incorrect terminology on two points:

- 1) The terms “emergency power off” or “EPO” are not used in the National Electrical Code. The correct term is “disconnecting means.”
- 2) The disconnecting means is usually not a “switch”. It is usually a control relay that activates a switch at some other location, such as on a circuit breaker panel.

The legend needs to be revised as proposed here. The drawing also needs to be revised to replace *EPO* with *DM* in all three places where it appears.

75- Log #110
(C.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text as follows:

C.1.2 Information technology equipment has become the accepted tool to research, store, and exchange information, to process large amounts of statistical, problematical, or experimental information, and to print out or display ~~answers or~~ information in very short periods of time. Reliance is placed on the equipment to perform the repetitive, the experimental, and, in some cases, even the whole programming operation for business, industry, government, and research groups. In some cases building management, manufacturing processes, and life safety functions may be integrated into the information technology equipment system.

Substantiation: The existing explanation of what IT equipment is and does sounds somewhat archaic. The continued operation of the Information Technology system can be critical. IT is no longer just batch processing of accounting or statistical data. It is the almost instantaneous exchange of information in almost any form, including text, graphic, audio, and video. It can be integral to a manufacturing process and/or to the total environment of the facility. There is barely any function that exists today in any activity that is not in some way connected to the IT equipment. This can include life safety functions. Huge amounts of information are stored, and at any given moment vast amounts of information are being exchanged.

75- Log #104
(D.1.2)

Final Action:

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Add new text as follows:

D.1.2 Chemical Agents. Chemical agents include gases that have been found to be effective in suppressing fires by chemical means or, in some cases, by a combination of chemical reaction and cooling. See NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, for specific agent and system design guidance.

While these systems have proven to be effective and relatively trouble-free when installed as approved, it is prudent to consider the following factors in integrating such systems into a facility:

- (1) Effectiveness of agent on types of fires expected
- (2) Energized versus de-energized equipment
- (3) Possible effect of "neat" agent discharges on the equipment and/or space that is being protected
- (4) Dealing with products of combustion and/or products of decomposition created in a fire and fire suppression
- (5) Potential hazard to personnel
- (6) Long-term availability of agent and/or system components
- (7) Compatibility of system operation with facility operation
- (8) Selection of detection system
- (9) Effects on the environment and possible restrictions on its use
- (10) Possible effects of "thermal shock "

Substantiation: The history of Halon, which was banned because of its effect on the ozone layer, is well known and other chemical agents may have similar concerns. The advantages of gaseous agents must be weighed against possible environmental damage and associated repercussions.

Thermal shock can occur when cold compressed gas meets hot electronic equipment. Better alternatives may not be possible, but the potential for equipment damage must at least be understood.

75- Log #36
(Annex E)

Final Action:

Submitter: Stanley Kaufman, CableSafe, Inc. / Rep. The Society of the Plastics Industry

Recommendation: Deleted text to read as follows:

~~NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*, 2006 edition.~~

Substantiation: NFPA 255 has been withdrawn.

75- Log #74
(E.1.2.3)

Final Action:

Submitter: Bob Eugene, Underwriters Laboratories Inc.

Recommendation: Revise text as follows:

E.1.2.3 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

~~ANSI/UL 1581, Standard for Electrical Wires, Cables, and Flexible Cords, 2001 including revisions through May 6, 2009~~
ANSI/UL 1581, Standard for Electrical Wires, Cables, and Flexible Cords, 2001 including revisions through October 5, 2009.

Substantiation: Add ANSI approval designation to ANSI/UL 1581. Update revision date.