ANSI/NFPA 257 An American National Standard August 17, 1990

NFPA 257 Fire Tests of Window Assemblies 1990 Edition

National Fire Protection Association 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101

NFPA 257

Standard for

Fire Tests of Window Assemblies

1990 Edition

This edition of NFPA 257, *Standard for Fire Tests of Window Assemblies*, was prepared by the Technical Committee on Fire Tests and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 21-24, 1990 in San Antonio, TX. It was issued by the Standards Council on July 20, 1990, with an effective date of August 17, 1990, and supersedes all previous editions.

The 1990 edition of this document has been approved by the American National Standards Institute.

Changes other than editorial are indicated by a vertical rule in the margin of the pages on which they appear. These lines are included as an aid to the user in identifying changes from the previous edition.

Origin and Development of NFPA 257

This standard was tentatively adopted by NFPA in 1969, and officially adopted in 1970. Subsequent revisions were released in 1975, 1980, 1985, and 1990.

Technical Committee on Fire Tests

Sanford Davis, *Chairman*
NIST/Center for Fire Research

Jesse J. Beitel, *Vice Chairman*
Southwest Research Inst.

Ron Coté, *Secretary*
National Fire Protection Association
(Nonvoting)

John A. Blair, E. I. du Pont de Nemours & Co.
Rep. Society of the Plastics Industry
Delbert F. Boring, American Iron & Steel Inst.
Brendan J. Callahan, Factory Mutual Research Corp.
Philip J. DiNenno, Hughes Associates Inc.
Gerard R. Dufresne, US Testing Co. Inc. (vote limited to textile materials & related products)
Robert Gallagher, IBM - Data Systems Div.
Robert W. Glowinski, National Forest Products Assoc.
Peter Higginson, Underwriters Laboratories of Canada
Alfred J. Hogan, Cypress Gardens, FL
Rep. Int'l Assoc. of Fire Chiefs
Michael W. Janko, Stouffer Corp/Nestlé Enterprises
Rep. American Hotel/Motel Assoc.
Donald C. Knodel, E. I. du Pont de Nemours & Co.
Rep. Man-Made Fiber Producers Assoc.
Gerald E. Lingenfelter, American Insurance Services Group Inc.
George E. Meyer, Warnock Hersey Int'l Inc.
John W. Michener, Milliken Research Corp.
Rep. American Textile Manufacturing Inst.
James A. Milke, Columbia, MD
Rep. University of Maryland
Ernest E. Miller, Industrial Risk Insurers
Leon Przybyla, Underwriters Laboratories, Inc.
Sivon C. Reznikoff, Arizona State University
T. Hugh Talley, Hugh Talley Co.
Rep. Upholstered Furniture Action Council
Richard P. Thornberry, The Code Consortium

Alternates

Kathleen Almand, American Iron & Steel Inst.
(Alternate to D. F. Boring)
Robert M. Berhinig, Underwriters Laboratories Inc.
(Alternate to L. Przybyla)
Peter H. Billing, Nat'l Forest Products Assn.
(Alternate to R. W. Glowinski)
J. P. Carroll, Society of the Plastics Industry
(Alternate to J. A. Blair)
Thomas G. Daly, Hilton Hotels Corp.
(Alternate to M. W. Janko)
John A. Davenport, Industrial Risk Insurers
(Alternate to E. E. Miller)
Richard G. Gewain, Hughes Associates, Inc.
(Alternate to P. J. DiNenno)
Carl A. Hafer, Southwest Research Inst.
(Alternate to J. J. Beitel)
R. Joseph Pearson, Warnock Hersey Int'l Inc.
(Alternate to G. E. Meyer)
Hardy Poole, American Teztile Manufacturing Inst.
(Alternate to J. W. Michener)
John Roberts, Underwriters Laboratories of Canada
(Alternate to P. Higginson)

Nonvoting

A. J. Bartosic, Rohm & Haas Co.
Herman H. Spaeth, Novato, CA
(Member Emeritus)

Ron Coté, NFPA Staff Liaison

This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

NOTE: Membership on a Committee shall not in and of itself constitute an endorsement of the Association or any document developed by the Committee on which the member serves.

Contents

NFPA 257

Standard for

Fire Tests of Window Assemblies

1990 Edition

Chapter 1 General

1-1 Scope.

(a) These methods of fire tests are applicable to window assemblies, including glass block and other light-transmitting assemblies, for use in wall openings to retard the passage of fire.

NOTE: It should be noted that assemblies classified in accordance with the provisions of this standard afford only limited protection from the transmission of heat or against radiation hazard.

(b) Tests made in conformity with these test methods will register performance during the test exposure and develop data to enable regulatory bodies to determine the suitability of window assemblies for use in wall openings where fire protection is required. Such tests shall not be construed as determining suitability of window assemblies for continued use after fire exposure.

1-2 Significance. These methods are intended to evaluate the ability of a window or other light-transmitting assembly to remain in an opening during a predetermined test exposure period of 45 minutes.

1-2.1 The tests expose a specimen to a standard fire exposure controlled to achieve specified temperatures throughout a specified time period, followed by the application of a specified standard fire hose stream. The exposure, however, may not be representative of all fire conditions, which may vary with changes in the amount, nature, and distribution of fire loading, ventilation, compartment size and configuration, and heat sink characteristics of the compartment. It does, however, provide a relative measure of fire performance of window assemblies under these specified fire exposure conditions.

1-2.2 Any variation from the construction or conditions that are tested may substantially change the performance characteristics of the assembly.

1-2.3 These methods do not provide the following:

1-2.3.1 Full information as to performance of all window assemblies in walls constructed of materials other than that tested.

1-2.3.2 Evaluation of the degree by which the window assembly contributes to the fire hazard by generation of smoke, toxic gases, or other products of combustion.

1-2.3.3 Measurement of the unexposed surface temperature of windows.

1-2.3.4 Measurement of the degree of control or limitation of smoke or products of combustion passing through the window assembly.

1-2.4 These methods permit loss of glass lights, and through openings, provided such loss and openings do not exceed specified limits.

1-3 Definitions.

Shall. Indicates a mandatory requirement.

Chapter 2 Control of Fire Tests

2-1 Time-Temperature Curve. (*See Figure 2-1.1.*)

2-1.1 The fire exposure of window assemblies shall be controlled to conform to the standard time-temperature curve shown in Figure 2-1.1. The points on the curve that determine its character are:

1000°F (538°C)	at 5 minutes
1300°F (704°C)	at 10 minutes
1399°F (760°C)	at 15 minutes
1462°F (795°C)	at 20 minutes
1510°F (821°C)	at 25 minutes
1550°F (843°C)	at 30 minutes
1584°F (868°C)	at 35 minutes
1613°F (878°C)	at 40 minutes
1638°F (892°C)	at 45 minutes

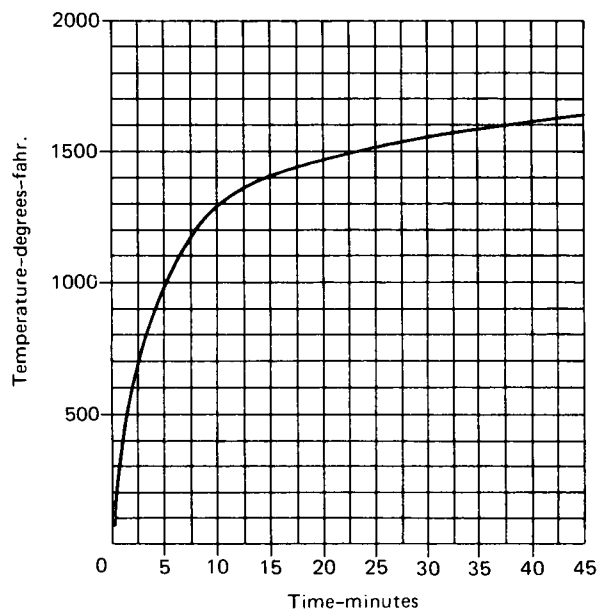

Figure 2-1.1 Time-Temperature Curve

2-2 Furnace Temperatures.

(a) The temperatures of the test exposure shall be the average temperature obtained from the readings of not less than 9 thermocouples symmetrically disposed and distributed

to show the temperature near all parts of the test assembly. The thermocouples shall be protected by sealed porcelain tubes having 3/4-in. (19-mm) outside diameter and 1/8-in. (3-mm) wall thickness or, as an alternate in the case of base-metal thermocouples, protected by sealed 1/2-in. (13-mm) wrought-steel or wrought-iron pipe of standard weight. The exposed length of the thermocouple protection tube in the furnace chamber shall be not less than 12 in. (304.8 mm). The junction of the thermocouples shall be 6 in. (152.4 mm) from the exposed face of the test assembly or from the masonry in which the assembly is installed, during the entire test exposure.

(b) The temperatures shall be read at intervals not exceeding 5 minutes.

(c) The furnace shall be controlled so that the maximum temperature at individual points shall not exceed 1650°F (900°C) and the area under the time-temperature curve, obtained by averaging the results from the temperature readings, is within 10 percent of the corresponding area under the standard time-temperature curve shown in Figure 2-1.1.

(d) In case the temperature at any point does exceed 1650°F (900°C), the performance of the glass in that area shall be disregarded.

Chapter 3 Test Assemblies

3-1 Construction and Size.

(a) The design, construction, material, workmanship, and hardware of the test window assembly shall be representative of that for which approval is desired. A record of materials and construction details adequate for identification shall be made.

(b) The area of the test assembly shall be not less than 100 sq ft (9.29 m^2), with neither dimension less than 9 ft (2.75 m). If the conditions of use limit the construction to smaller dimensions, a proportionate reduction may be made in the dimensions of the test assembly for tests qualifying them for such restricted use.

3-2 Mounting. The test assembly shall be installed in the wall or partition construction in the manner in which it is to be used. It shall be mounted so that the latches and fasteners other than hinges shall be on the unexposed side, and the mounting shall not prevent the free and easy operation of all openable components such as ventilators and sashes.

Chapter 4 Conduct of Tests

4-1 Test Assembly. The wall or partition in which the window assembly is tested shall have adequate strength to retain the assembly securely in position throughout the fire and hose stream test; it shall be constructed of masonry or other materials representative of the wall or partition construction. Window frame wall anchors, when used, shall be suitable for the wall or partition constructed.

4-2 Fire Endurance Test.

(a) The pressure in the furnace chamber shall be maintained as nearly equal to the atmospheric pressure as possible.

(b) The test shall be continued for 45 minutes unless the conditions of acceptance set forth in Chapter 6 are exceeded in a shorter period.

4-3 Hose Stream Test.

(a) Immediately following the fire endurance test and within 1 1/2 minutes, the fire-exposed side of the test assembly shall be subjected to the impact, erosion, and cooling effects of the hose stream.

(b) The stream shall be delivered through a 2-1/2 in. (64-mm) hose discharging through a national standard play pipe as described in ANSI/UL 385. The play pipe shall have an overall length of 30 in. (762 mm) and be equipped with a 1-1/8 in. (28.5-mm) discharge tip of the standard-taper smooth-bore pattern without shoulder at the orifice. The play pipe shall be fitted with a 2-1/2 in. (64-mm) inside diameter by 6 in. (153 mm) long nipple mounted between the hose and the base of the play pipe. The pressure tap for measuring the water pressure at the base of the nozzle shall be normal to the surface of the nipple, centered in its length, and shall not protrude into the water stream. The water pressure shall be measured with a suitable pressure gauge [as a minimum 0-50 psi (0-345 kPa)] graduated in no more than 2 psi (13.8 kPa) increments.

(c) The tip of the nozzle shall be located 20 ft (6.1 m) from and on a line normal to the center of the test assembly. If impossible to be so located, the nozzle may be on a line deviating not more than 30 degrees from the line normal to the center of the test door. When so located, the distance from the plane of the surface to the test assembly shall be less than 20 ft (6.1 m) by an amount equal to 1 ft (0.31 m) for each 10 degrees of deviation from the normal.

(d) The hose stream shall be directed around the periphery of the test assembly, starting upward from a lower corner. When the circuit is about 1 ft (0.31 m) from the starting point, the hose stream shall be applied in paths about 1 ft (0.31 m) apart up and down the assembly across the entire width and then back and forth horizontally across the entire height.

(e) The water pressure at the base of the nozzle shall be 30 psi (207 kPa), and the hose stream shall be applied 6/10 second for each sq ft of area of the test assembly.

Chapter 5 Reports

5-1 Report Results. Report results in accordance with the performance in the tests as prescribed in these test methods. The report shall include but shall not be limited to the following:

(a) A description of the wall in which the unit is mounted for testing.

(b) The temperature measurements of the furnace on a comparative graph with the standard time-temperature curve (Section 2-2).

(c) All observations of the reaction to fire of the test assembly that may have a bearing on its performance, during both the fire and hose stream tests.

(d) Condition of the window and its fastenings after the tests.

(e) The amount and nature of the movement of any openable components from the initial closed position.

(f) The condition of the individual glass lights, including movement of the edges, and the percentage of fragments dislodged during the tests.

(g) For glass blocks, report any loosening of the blocks in the frame and any through openings.

(h) The materials and construction of the fire window assembly and wall or partition, and details of installation, including frames, latches, hinges, and fasteners used for mounting, shall be recorded or referenced to assure positive identification or duplication in all respects.

(i) Pressure measurements made in the furnace and their location relative to the top of the window.

Chapter 6 Conditions of Acceptance

6-1 Window Assemblies. (*See Figure 6-1.*) A window assembly shall be considered as meeting the requirements for acceptable performance when it remains in the opening during the fire endurance test and hose stream test within the following limitations:

(a) During the fire exposure there shall be no separation of the glass edges from the glazing frame so as to create any openings.[1]

Figure 6-1 Unexposed side of window assembly after fire exposure and hose stream application.

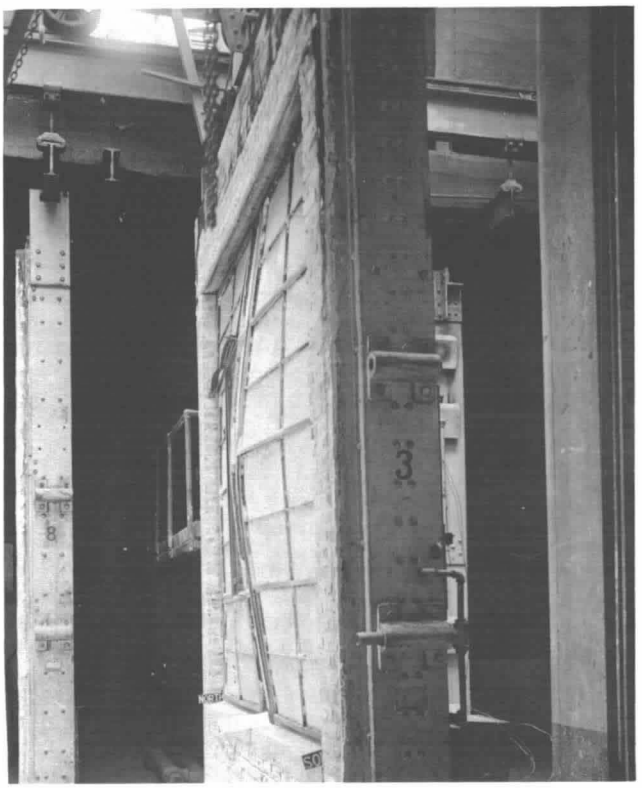

Figure 6-2 Exposed side of window assembly after fire exposure and hose stream application.

(b) The window assembly shall not be loosened from its fastenings.

(c) Movement at the perimeter of openable components, from the initial closed position, shall not exceed the thickness of the frame member at any point.

(d) Separation of the glass edges during the hose stream test from the glazing frame by movement away from the frame so as to create an opening shall not exceed 30 percent of each individual glass light perimeter. During the fire exposure test, movement away from the frame so as to create an opening is not permitted.[1]

(e) During the hose stream test, openings created by glass breakage in the central area of each glass light shall not exceed 5 percent of the area of each individual glass light.[1]

6-2 Glass Block Assemblies. (*See Figure 6-2.*)

A glass block assembly shall be considered as meeting the requirements for acceptable performance when it remains in the opening during the fire endurance and hose stream tests within the following limitations:

(a) The glass block assembly shall not be loosened from the frame.

[1] Openings for the purpose of 6-1(a), (d), and (e) are defined as through holes in the assembly that can be seen from the unexposed side when looking perpendicular through the plane of the assembly at the location of the suspected opening.

(b) At least 70 percent of the glass blocks shall not develop through openings.

Chapter 7 Referenced Publications

7-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the data of the NFPA issuance of this document.

7-1.1 ANSI/UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062.

ANSI/UL 385-1988, *Play Pipes for Water Supply Testing in Fire Protection Service*

Appendix A Commentary — Background and Development

Introduction. This commentary has been prepared to provide the user of NFPA 257 with background information on the development of the standard and its application in fire protection of buildings. It also provides guidance in the planning and performance of fire tests and in the reporting of results. No attempt has been made to incorporate all the available information on fire testing in this commentary. The serious student of fire testing should review the referenced documents for a better appreciation of the intricate problems 0ssociated with testing and with interpretation of test results.

Application. Openings in the exterior walls of buildings have contributed to the spread of fire. Fire protection standards[1] and building codes[2] recognize the hazard of exterior wall openings caused by inadequate spatial separation between buildings. Where the spatial separation is not adequate and the expected fire exposure is moderate or light, these regulations allow protected window openings. This protection may be provided by properly designed windows and glass block assemblies. Where sustained severe exposures are possible, the openings should be protected with fire door assemblies.[3]

To protect paths of egress from interior fires, fire window assemblies may be specified for openings abutting exterior stairs and fire escapes and in corridors where wall openings are used to provide natural lighting of the corridor from adjacent rooms.

Scope and Significance. NFPA 257 provides a method for evaluating the effectiveness of light-transmitting opening protectives.

The window assembly is exposed in a closed position to predetermined fire conditions for a period of 45 minutes and then subjected to a standard hose stream impact test. The standard does not measure or evaluate the heat transmission or radiation through the assembly. The reader is urged to consult NFPA 80A, *Recommended Practice for Protection of Buildings from Exterior Fire Exposures*[1], for information on exterior fire exposure problems.

Openings in walls, even when protected, provide lower fire protection than the wall, and the designed protection cannot be expected if combustibles are located directly in front of or behind the protectives. Therefore, clear spaces should be provided on both sides of openings in fire rated walls and partitions.

Furnace. The method provides details on the operating characteristics and temperature measurement requirements of the test furnace. The walls of the furnace should be typically of furnace refractory materials and should be sufficiently rugged to maintain the overall integrity of the furnace during the fire exposure period.

The thermocouples in the furnace are located 6 in. (152 mm) from the face of the door or the wall in which the window assembly is installed. Otherwise no furnace depth is specified. A depth of 8 to 18 in. (203 to 457 mm) has been considered desirable by most laboratories. The reader is urged to consult reference documents for a more comprehensive review of furnace design and performance.[4,5]

Time-Temperature Curve. A specified time-temperature relationship for the test fire is defined in the standard. The actual recorded time-temperature condition obtained in the furnace during the test as measured by the area under the time-temperature curve is required to be within specified percentages of those of the standard curve. The number and type of temperature measuring devices are outlined in the standard. Specific standard practices for location and use of these temperature measuring devices are also outlined in the standard.

The standard time-temperature curve is considered to represent a relatively severe building fire.[4] The curve was adopted in 1918 as a result of several conferences by 11 technical organizations, including testing laboratories, insurance underwriters, fire protection associations, and technical societies.[6,7,8] It should be recognized that the time-temperature relationship of this test method represents only one real fire situation.[9,10,11,12,13,14,15]

Furnace Control. The standard contains specific instructions for measuring temperatures in the furnace and for the selection of required thermocouples. Thermocouples of the design specified are sufficiently rugged to retain accuracy throughout anticipated test periods. However, their massive construction results in a significant time delay in response to temperature change and results in temperatures exceeding the indicated temperatures during the early stages of the test period when the temperature rises rapidly. The iron or porcelain tubes surrounding the junction and leads of the thermocouple provide a shield against degradation of the junction and increase the thermal inertia. It is customary for laboratories to replace furnace thermocouples after 3 or 4 accumulated hours of use.

Unexposed Surface Temperature. Conditions of acceptance for fire-resistive walls specify that the temperature increase on the unexposed side of the wall not exceed 250°F (139°C) average for the various thermocouples and that there be no passage of flame and gases hot enough to ignite combustibles. It is obvious that the very nature of a fire window (or wire glass or glass block) precludes the use of these criteria.

Test Assemblies. Fire window assemblies are tested in relatively large sizes compared with most doors, i.e., 100 sq ft (9.3 m^2) in area. Individual panes of glass or units are determined by the designer. Window assemblies 150 sq ft (13.9

m^2) in area have been tested. When assemblies are less than 100 sq ft (9.3 m^2) in size, this fact must be reported as an exception.

Conduct of the Tests. The test frame or wall in which a window assembly is installed should be rugged enough to endure the fire exposure during the time period, without affecting the window assembly. Traditionally, this wall has been of masonry construction. Today, fire windows are installed in walls of other than masonry construction and have been tested in these walls.

Furnace Pressures. A fire in a building compartment will create both negative and positive pressures on window assemblies depending upon atmospheric conditions, height above ground, wind conditions, and ventilation of the compartment at the beginning and during the fire.

NFPA 257 specifies that the pressure in the furnace be maintained as nearly equal to atmospheric pressure as possible. Experience has shown this practice to be acceptable. The pressure in the furnace is required to be reported but the method of measuring it is optional with the laboratory.

Hose Stream Test. Immediately following a fire test, the test frame is removed from the furnace and the window assembly is subjected to the impact, erosion, and cooling effects of a stream of water from a 2½-in. (63.5-mm) hose discharging through a standard playpipe equipped with a 1⅛-in. (28.5-mm) tip under specified pressures. The application of water produces stresses in the assembly and provides a measure of its structural capabilities. Weights were once used to provide a measure of the ability of the assembly to withstand impact. The hose stream is considered to be an improvement in uniformity and accuracy over the weights.

Conditions of Acceptance. During the 45-minute fire exposure and hose stream test, the fire window assembly must stay in place and not be loosened from the test frame. During the hose stream test, window assemblies are permitted to have glass dislodged from the central portion as long as the amount dislodged does not exceed 5 percent of the area of each individual glass light. During the hose stream test, separation of the glass edges from the frame by movement away from the frame to create an opening as defined by footnote 1 in Section 6-1 is limited to 30 percent of the perimeter of each individual glass light. At least 70 percent of the glass blocks shall not develop through openings.

Appendix B Referenced Publications

B-1 Bibliography. The following references are for informational purposes only and carry the same superscript numbers used in referencing these publications in the Appendix A commentary.

[1]NFPA 80A-1987, *Recommended Practice for Protection of Buildings from Exterior Fire Exposures*, National Fire Protection Association, Quincy, MA 02269.

[2]*Basic Building Code*, Building Officials & Code Administrators International, Inc.

Uniform Building Code, International Conference of Building Officials, Inc.

Standard Building Code, Southern Building Code Congress.

[3]NFPA 80-1990, *Standard for Fire Doors and Windows*, National Fire Protection Association, Quincy, MA 02269.

[4]Seigel, L.G., "Effects of Furnace Design on Fire Endurance Tests Results," ASTM STP 464, American Society for Testing & Materials, 1970, pp. 57-67.

[5]Harmathy, T.Z., "Design of Fire Test Furnaces," *Fire Technology*, Vol. 5, No. 2, May 1969, pp. 146-150.

[6]Babrauskas, Vytenis and Williamson, Robert Brady, "Historical Basis of Fire Resistance Testing," Part I and Part II, *Fire Technology*, Vol. 14, No. 3 and No. 4, 1978 pp. 184-194; 304-316 (1978).

[7]*Fire Protection Handbook*, Sixteenth Edition, National Fire Protection Association, Quincy, MA 02269.

[8]Harmathy, T.Z., "Designer's Option: Fire Resistance or Ventilation," Technical Paper No. 436, Division of Building Research, National Research Council of Canada, Ottawa, NRCC 14746.

[9]Seigel, L.G., "The Severity of Fires in Steel-Framed Buildings," Symposium No. 2, Her Majesty's Stationery Office, 1968, London; proceedings of the Symposium held at the Fire Research Station, Boreham Woods, Herts (England) on January 24, 1967.

[10]Odeen, Kai, "Theoretical Study of Fire Characteristics in Enclosed Spaces," *Bulletin of the Division of Building Construction*, Royal Institute of Technology, Stockholm, Sweden, 1965.

[11]Shorter, G.W., "Fire Protection Engineers and Modern Building Design," *Fire Technology*, August 1968.

[12]Stone, Richard, "Danger — Flammable," *Wall Street Journal*, December 8, 1970.

[13]Ryan, J.E., "Assessment of Fire Hazards in Buildings," ASTM STP 502.

[14]Harmathy, T.Z., "Design Approach to Fire Safety in Buildings," *Progressive Architecture*, April 1974, National Research Council of Canada, pp. 82-87, NRCC 14076.

[15]Harmathy, T.Z., "A New Look at Compartment Fires," Part I and Part II, *Fire Technology*, Vol. 8, No. 3 and No. 4, 1972, pp. 196-217 and 326-351.

B-2 Additional References. The following references are included for informational purposes only.

Williamson, R.B. and Buchanan, A.H., *A Heat Balance Analysis of the Standard Fire Endurance Test.*

Heselden, A.J.M., "Parameters Determining the Severity of Fire," Symposium No. 2, Her Majesty's Stationary Office, 1968, London; proceedings of the Symposium held at the Fire Research Station, Boreham Woods, Herts (England) on January 24, 1967.

Gross, D. and Robertson, A. F., "Experimental Fires in Enclosures," Tenth Symposium (International) on Combustion, pp. 931-942, The Combustion Institute, 1965.

Harmathy, T. Z., "Performance of Building Elements in Spreading Fire," DBR Paper No. 752, National Research Council of Canada, NRCC 16437, *Fire Research*, Vol. 1, 1977-78, pp. 119-132.

Law, Margaret, "Radiation from Fires in a Compartment," Fire Research Technical Paper No. 20, Her Majesty's Stationary Office, 1968, London.

Konicek, L. and Lie, T. T., "Temperature Tables for Ventilation Controlled Fires," Building Research Note No. 94, National Research Council of Canada, September 1974.

Index

SUBMITTING PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Contact NFPA Standards Administration for final date for receipt of proposals on a specific document.

INSTRUCTIONS

Please use the forms which follow for submitting proposed amendments. Use a separate form for each proposal.

1. For each document on which you are proposing amendment indicate:
   (a) The number and title of the document
   (b) The specific section or paragraph.

2. Check the box indicating whether or not this proposal recommends new text, revised text, or to delete text.

3. In the space identified as "Proposal" include the wording you propose as new or revised text, or indicate if you wish to delete text.

4. In the space titled "Statement of Problem and Substantiation for Proposal" state the problem which will be resolved by your recommendation and give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If a statement is more than 200 words in length, the technical committee is authorized to abstract it for the Technical Committee Report.

5. Check the box indicating whether or not this proposal is original material, and if it is not, indicate source.

6. If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.

7. Type or print legibly in black ink.

NOTE: The NFPA Regulations Governing Committee Projects in Paragraph 10-10 state: Each proposal shall be submitted to the Council Secretary and shall include:

(a) identification of the submitter and his affiliation (Committee, organization, company) where appropriate, and

(b) identification of the document, paragraph of the document to which the proposal is directed, and

(c) a statement of the problem and substantiation for the proposal, and

(d) proposed text of proposal, including the wording to be added, revised (and how revised), or deleted.

FORM FOR PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Mail to: Secretary, Standards Council
National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101

Note: All proposals must be received by 5:00 p.m. E.S.T./E.S.D.T. on the published proposal closing date.

Date 5/18/85 **Name** John B. Smith **Tel. No.** 617-555-1212

Address 9 Seattle St., Seattle, WA 02255

Representing (Please indicate organization, company or self) Fire Marshals Assn. of North America

1. a) **Document Title:** Protective Signaling Systems **NFPA No. & Year** NFPA 72D

   b) **Section/Paragraph:** 2-7.1 (Exception)

FOR OFFICE USE ONLY
Log #: _____
Date Rec'd: _____
Proposal #: _____

2. **Proposal recommends: (Check one)** ☐ new text
   ☐ revised text
   ☒ deleted text.

3. **Proposal (include proposed new or revised wording, or identification of wording to be deleted):**

   Delete exception.

4. **Statement of Problem and Substantiation for Proposal:**

   A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.

5. ☒ **This Proposal is original material.**
   ☐ **This Proposal is not original material; its source (if known) is as follows:** _____

(Note: Original material is considered to be the submitter's own idea based on or as a result of his own experience, thought, or research and, to the best of his knowledge, is not copied from another source.)

I agree to give NFPA all and full rights, including rights of copyright, in this Proposal and I understand that I acquire no rights in any publication of NFPA in which this Proposal in this or another similar or analogous form is used.

John B. Smith

Signature

PLEASE USE SEPARATE FORM FOR EACH PROPOSAL