

NFPA® 252

Standard Methods of Fire Tests of Door Assemblies

2012 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization



IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® DOCUMENTS
NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF NFPA DOCUMENTS

NFPA® codes, standards, recommended practices, and guides (“NFPA Documents”), of which the document contained herein is one, are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on fire and other safety issues. While the NFPA administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in NFPA Documents.

The NFPA disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on NFPA Documents. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making NFPA Documents available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the NFPA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The NFPA has no power, nor does it undertake, to police or enforce compliance with the contents of NFPA Documents. Nor does the NFPA list, certify, test, or inspect products, designs, or installations for compliance with this document. Any certification or other statement of compliance with the requirements of this document shall not be attributable to the NFPA and is solely the responsibility of the certifier or maker of the statement.

ISBN: 978-145590288-0 (Print)
ISBN: 978-145590355-9 (PDF)

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA DOCUMENTS

ADDITIONAL NOTICES AND DISCLAIMERS

Updating of NFPA Documents

Users of NFPA codes, standards, recommended practices, and guides (“NFPA Documents”) should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of Tentative Interim Amendments. An official NFPA Document at any point in time consists of the current edition of the document together with any Tentative Interim Amendments and any Errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of Tentative Interim Amendments or corrected through the issuance of Errata, consult appropriate NFPA publications such as the National Fire Codes® Subscription Service, visit the NFPA website at www.nfpa.org, or contact the NFPA at the address listed below.

Interpretations of NFPA Documents

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing Committee Projects shall not be considered the official position of NFPA or any of its Committees and shall not be considered to be, nor be relied upon as, a Formal Interpretation.

Patents

The NFPA does not take any position with respect to the validity of any patent rights referenced in, related to, or asserted in connection with an NFPA Document. The users of NFPA Documents bear the sole responsibility for determining the validity of any such patent rights, as well as the risk of infringement of such rights, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on NFPA Documents.

NFPA adheres to the policy of the American National Standards Institute (ANSI) regarding the inclusion of patents in American National Standards (“the ANSI Patent Policy”), and hereby gives the following notice pursuant to that policy:

NOTICE: The user’s attention is called to the possibility that compliance with an NFPA Document may require use of an invention covered by patent rights. NFPA takes no position as to the validity of any such patent rights or as to whether such patent rights constitute or include essential patent claims under the ANSI Patent Policy. If, in connection with the ANSI Patent Policy, a patent holder has filed a statement of willingness to grant licenses under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, copies of such filed statements can be obtained, on request, from NFPA. For further information, contact the NFPA at the address listed below.

Law and Regulations

Users of NFPA Documents should consult applicable federal, state, and local laws and regulations. NFPA does not, by the publication of its codes, standards, recommended practices, and guides, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

NFPA Documents are copyrighted by the NFPA. They are made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of safe practices and methods. By making these documents available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to these documents.

Use of NFPA Documents for regulatory purposes should be accomplished through adoption by reference. The term “adoption by reference” means the citing of title, edition, and publishing information only. Any deletions, additions, and changes desired by the adopting authority should be noted separately in the adopting instrument. In order to assist NFPA in following the uses made of its documents, adopting authorities are requested to notify the NFPA (Attention: Secretary, Standards Council) in writing of such use. For technical assistance and questions concerning adoption of NFPA Documents, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA Documents and all requests for information on NFPA procedures governing its codes and standards development process, including information on the procedures for requesting Formal Interpretations, for proposing Tentative Interim Amendments, and for proposing revisions to NFPA documents during regular revision cycles, should be sent to NFPA headquarters, addressed to the attention of the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02169-7471; email: stds_admin@nfpa.org

For more information about NFPA, visit the NFPA website at www.nfpa.org.

Copyright © 2012 National Fire Protection Association®. All Rights Reserved.

NFPA® 252

Standard Methods of Fire Tests of Door Assemblies

2012 Edition

This edition of NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, was prepared by the Technical Committee on Fire Tests. It was issued by the Standards Council on December 13, 2011, with an effective date of January 2, 2012, and supersedes all previous editions.

This edition of NFPA 252 was approved as an American National Standard on January 2, 2012.

Origin and Development of NFPA 252

The American Society of Testing and Materials (ASTM) adopted *Standard Methods of Fire Tests of Door Assemblies* as a tentative standard in 1940 and as a formal standard in 1941. In 1942, the standard was adopted by the NFPA and approved by the American Standards Association. It was reconfirmed and adopted in 1950 by the Committee on Fire Tests of Building Construction and Materials. In 1953, a new NFPA Committee on Fire Tests was formed by action of the Board of Directors, and recommendations for revision of the standard made by that committee were adopted in 1958, 1969, 1972, 1976, 1979, 1984, and 1990.

The basic procedure covered by this standard was developed by Underwriters Laboratories Inc. and has not undergone any significant revisions to the original concept. The 1995 edition introduced a new provision addressing the neutral plane of the furnace. That provision permits the testing agency to establish the neutral plane of the test furnace to the specification of the particular need, by conducting the test under either positive pressure or atmospheric pressure.

The 1999 edition of NFPA 252 contained further editorial refinements to harmonize the procedures and terminology with those found in NFPA 251, *Standard Methods of Tests of Fire Resistance of Building Construction and Materials*; NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*; and NFPA 80, *Standard for Fire Doors and Fire Windows*. The 1999 edition also provided greater clarification for the hose stream application and procedure and the application and reporting of positive pressure testing for door assemblies.

For the 2003 edition, the chapter layout of NFPA 252 was reorganized to meet the *Manual of Style for NFPA Technical Committee Documents*, with minor editorial revisions.

Revisions for the 2008 edition included tighter tolerances for furnace control and the replacement of the detailed hose stream test procedures with a reference to ASTM E 2226, *Standard Practice for Application of Hose Stream*.

The 2012 edition includes revisions to the requirements for furnace pressure and temperatures.

Technical Committee on Fire Tests

William E. Fitch, *Chair*

Phyrefish Enterprises, Inc., FL [SE]

Farid Alfawakhiri, American Iron and Steel Institute, IL [M]

Barry L. Badders, Jr., Southwest Research Institute, TX [RT]

Jesse J. Beitel, Hughes Associates, Inc., MD [SE]

Robert G. Bill, Jr., FM Global, MA [I]

Gordon H. Damant, Inter-City Testing & Consulting Corp. of California, CA [SE]

Thomas W. Fritz, Armstrong World Industries, Inc., PA [M]

Marcelo M. Hirschler, GBH International, CA [SE]

Alfred J. Hogan, Winter Haven, FL [E]

Rep. International Fire Marshals Association

William E. Koffel, Koffel Associates, Inc., MD [SE]

James R. Lawson, National Institute of Standards & Technology, MD [RT]

Michael E. Luna, Intertek Testing Services, TX [RT]

Andre W. Marshall, University of Maryland, MD [SE]

Rodney A. McPhee, Canadian Wood Council, Canada [M]

Kathleen A. Newman, Firetect, CA [M]

David T. Sheppard, U.S. Bureau of Alcohol, Tobacco, Firearms & Explosives, MD [RT]

Dwayne E. Sloan, Underwriters Laboratories Inc., NC [RT]

Kuma Sumathipala, American Forest & Paper Association, DC [M]

T. Hugh Talley, Hugh Talley Company, TN [M]

Rep. Upholstered Furniture Action Council

Rick Thornberry, The Code Consortium, Inc., CA [SE]

Robert A. Wessel, Gypsum Association, MD [M]

Alternates

Scott W. Adams, Park City Fire Service District, UT [E]
(Alt. to A. J. Hogan)

Richard J. Davis, FM Global, MA [I]
(Alt. to R. G. Bill, Jr.)

David M. Ewan, Southwest Research Institute, TX [RT]
(Alt. to B. L. Badders, Jr.)

Sam W. Francis, American Forest & Paper Association, PA [M]
(Alt. to K. Sumathipala)

Richard G. Gann, National Institute of Standards & Technology, MD [RT]
(Alt. to J. R. Lawson)

Paul A. Hough, Armstrong World Industries, Inc., PA [M]
(Alt. to T. W. Fritz)

James K. Lathrop, Koffel Associates, Inc., CT [SE]
(Alt. to W. E. Koffel)

James A. Milke, University of Maryland, MD [SE]
(Alt. to A. W. Marshall)

Arthur J. Parker, Hughes Associates, Inc., MD [SE]
(Alt. to J. J. Beitel)

Deggary N. Priest, Intertek Testing Services, TX [RT]
(Alt. to M. E. Luna)

Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to F. Alfawakhiri)

Joe Ziolkowski, American Furniture Manufacturers Association, NC [M]
(Alt. to T. H. Talley)

Nonvoting

Robert H. Barker, American Fiber Manufacturers Association, VA [M]

Rohit Khanna, U.S. Consumer Product Safety Commission, MD [C]

Tracy L. Golinveaux, NFPA Staff Liaison

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

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.

Committee Scope: This Committee shall have primary responsibility for documents on fire testing procedures, for reviewing existing fire test standards and recommending appropriate action to NFPA, for recommending the application of and advising on the interpretation of acceptable test standards for fire problems of concern to NFPA technical committees and members, and for acting in a liaison capacity between NFPA and the committees of other organizations writing fire test standards. This Committee does not cover fire tests that are used to evaluate extinguishing agents, devices, or systems.



Contents

Chapter 1 Administration	252- 4	5.2 Mounting	252- 6
1.1 Scope	252- 4	5.3 Clearances	252- 6
1.2 Purpose	252- 4	5.4 Test Wall	252- 7
1.3 Application	252- 4		
Chapter 2 Referenced Publications	252- 4	Chapter 6 Conduct of Tests	252- 7
2.1 General	252- 4	6.1 Fire Test	252- 7
2.2 NFPA Publications	252- 4	6.2 Hose Stream Test	252- 8
2.3 Other Publications	252- 4		
2.4 References for Extracts in Mandatory Sections	252- 5	Chapter 7 Performance Criteria	252- 8
Chapter 3 Definitions	252- 5	7.1 General	252- 8
3.1 General	252- 5	7.2 Swinging Doors	252- 8
3.2 NFPA Official Definitions	252- 5	7.3 Sliding Doors	252- 9
3.3 General Definitions	252- 5	Chapter 8 Report	252- 9
Chapter 4 Control of Fire Test	252- 5	8.1 Results	252- 9
4.1 Temperature-Time Curve	252- 5	Annex A Explanatory Material	252-10
4.2 Furnace Temperatures	252- 5	Annex B Commentary	252-11
4.3 Unexposed Surface Temperatures	252- 6	Annex C Informational References	252-14
Chapter 5 Fire Door Assembly	252- 6	Index	252-15
5.1 Construction and Size	252- 6		

NFPA 252

Standard Methods of Fire Tests of Door Assemblies

2012 Edition

IMPORTANT NOTE: This NFPA document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading "Important Notices and Disclaimers Concerning NFPA Documents." They can also be obtained on request from NFPA or viewed at www.nfpa.org/disclaimers.

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex C. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2, Annex B, and Annex C.

Chapter 1 Administration

1.1 Scope. This standard prescribes standardized fire and hose stream test procedures that apply to fire door assemblies intended to be used to retard the spread of fire through door openings in fire-resistive walls.

1.2 Purpose.

1.2.1 The purpose of this standard is to prescribe specific fire and hose stream test procedures for fire door assemblies in order to standardize a method for determining the degree of fire protection provided by such assemblies in retarding the spread of fire (flame, heat, and hot gases) through door openings in fire-resistive walls.

1.2.2 The degree of fire protection measured in units of time is not an absolute value because all possible actual fire scenarios are not represented by the standard fire exposure described herein.

1.2.3 This standard allows different fire door assemblies to be compared with each other in order to evaluate their relative performance as measured against a standard fire exposure.

1.3 Application.

1.3.1 This standard is intended to evaluate the ability of a door assembly to remain in a wall opening during a prescribed

fire test exposure, which is then followed by the application of a prescribed hose stream.

1.3.2 Tests conducted as described in these standard test methods measure the performance of fire door assemblies during the test exposure and develop data that enable regulatory bodies to require fire door assemblies for use in wall openings where fire protection is required.

1.3.3 The tests described in these standard test methods expose a specimen to a standard fire exposure that is controlled to achieve specified temperatures throughout a specified time period, which is then followed by the application of a specified standard hose stream. The fire exposure, however, is not representative of all fire conditions, which vary with changes in the amount, nature, and distribution of fire loading, ventilation, compartment size and configuration, and heat sink characteristics of the compartment. The fire exposure does, however, provide a relative measure of the performance of fire door assemblies under these specified fire exposure conditions. Similarly, the hose stream exposure is not representative of all applications of actual hose streams used by a fire department during fire suppression efforts.

1.3.4 Any variation from, or change to, the construction or conditions of the door assembly as tested can change the performance characteristics of the fire door assembly.

1.3.5 These tests shall not be construed as determining the suitability of fire door assemblies for continued use after exposure to real fires.

1.3.6 This standard shall not be used to provide the following:

- (1) Full information regarding the performance of specific fire door assemblies where installed in walls constructed of materials other than those tested
- (2) Evaluation of the degree to which the fire door assembly contributes to the fire hazard by generation of smoke, toxic gases, or other products of combustion
- (3) Measurement that determines a limit on the number and size of vision panels permitted or the number and size of lateral openings permitted between the door and frame
- (4) Measurement of the fire door assembly's ability to control or limit the passage of smoke or similar products of combustion through the assembly
- (5) Measurement that determines a specific temperature limit on the unexposed surface of the fire door assembly

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. (Reserved)

2.3 Other Publications.

2.3.1 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM E 119. *Standard Test Method for Fire Tests of Building Construction and Materials*, 2011.

ASTM E 2226, *Standard Practice for Application of Hose Stream*, 2010.

