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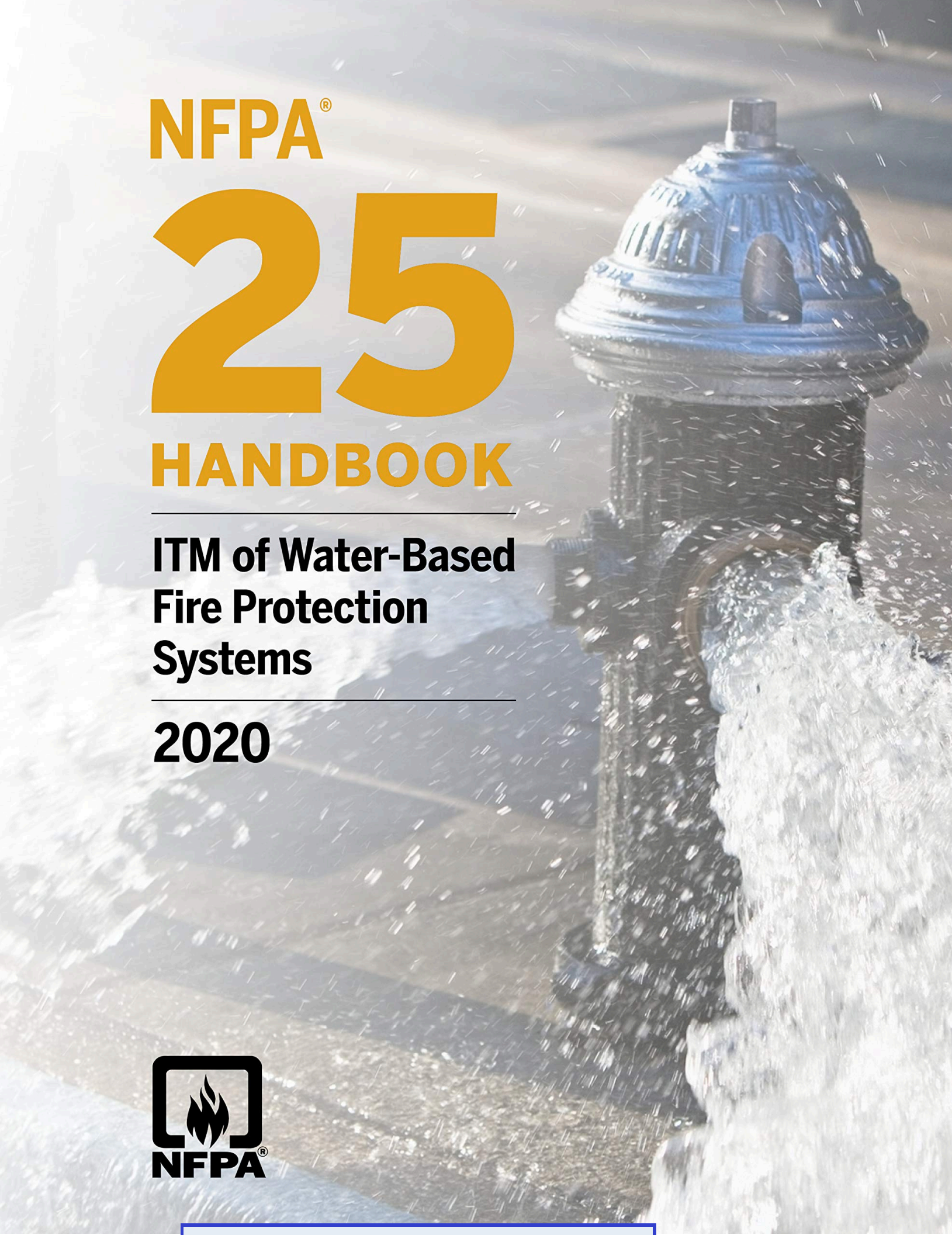
HANDBOOK

ITM of Water-Based Fire Protection Systems

2020



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NFPA® 25 Handbook: ITM of Water-Based Fire Protection Systems

Sixth Edition

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With the complete text of the 2020 edition of NFPA® 25,
Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

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PREFACE

The amount of data and the number of resources available to sprinkler system designers has never been greater. With the proper application of this information, along with the use of state-of-the-art equipment and system components, water-based fire protection system effectiveness and reliability continues to improve upon what is already considered to be a stellar track record. Even with this data and the latest products on the market, however, a system is only as effective as the inspection, testing, and maintenance (ITM) program that is used to keep it running once a building is occupied. The standard of care for proper water-based fire protection system ITM execution is NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*. This standard is the foundation of *NFPA 25 Handbook: ITM of Water-Based Fire Protection Systems*.

In addition to the requirements of NFPA 25, this handbook contains commentary on why the requirements have been included in the standard and how they can be executed. Dispersed throughout the handbook are several features intended to give the user additional information that will help them properly apply the standard. These recurring features include:

FAQs
Tips for Owners
Historical Notes
Back to Basics chapter introductions
ITM Deficiency, Impairment, or Hazard Evaluation examples
Testing Procedures
System Tagging case studies

The frequently asked questions, or FAQ, feature is based on the questions most commonly asked of the NFPA 25 staff. Several Case In Point boxes are also included throughout, to expand on material presented in the commentary.

This edition also includes a feature called ITM Deficiency, Impairment, or Hazard Evaluation. This feature provides examples to illustrate the differences between ITM-related field conditions that fall within the scope of NFPA 25 and items that are not considered to be "wear-and-tear" issues. Conditions that require a design evaluation are outside of the scope of the NFPA 25 standard and are not considered part of the NFPA 25 inspector's work. Knowing when something should or should not be covered on an NFPA 25 inspection report can be critical, especially when it comes to liability.

Another feature in this handbook is the addition of testing procedures, which are provided at the end of most chapters, to discuss in detail what steps should be taken in order to properly test systems. These procedures are identified with a brief Testing Procedure Alert box within the chapter, alerting the reader that a more complete list of procedures can be found at the end of the chapter.

While NFPA 25 identifies a myriad of tests that must be conducted in order to gain some assurance of system functionality, the standard does not provide processes and procedures for conducting these tests. This is largely done because in a standard it is not possible to identify a singular approach to testing a system that could have been designed dozens of different ways depending on when it was built. It is also difficult to write a procedure where the resources available to the owner, inspector, and AHJ will vary greatly from facility to facility. As such, NFPA 25 simply identifies the activity that must be performed and the frequency at which it must be performed. This handbook contains a feature to fill in some of the gaps that cannot be addressed within a standard.

These testing procedures outline potential processes and procedures for conducting many of the tests that are mandated by NFPA 25. It is important to note that these processes and procedures are not part of NFPA 25. The actions identified and the steps provided in these procedures represent one approach to conducting a test required by this standard. In some instances, the procedures outlined in this handbook cannot be performed as described or it might not be appropriate to perform them based on the specific equipment that has been installed or the arrangement of the equipment.

A System Tagging feature is also included in this edition of the handbook to help readers identify field conditions that warrant action and determine the criticality of the situation. Assigning criticality to the field conditions that are identified during inspections is a critical part of the ITM process. This feature is intended to help readers understand what goes into the process of classifying deficiencies and impairments. The feature also examines various specific field conditions and explains the process of determining the severity of the condition and whether the condition should be listed as an impairment, a critical deficiency, or a noncritical deficiency.

Other features included in this edition are the Tips for Owners and Historical Notes appearing throughout the commentary. NFPA 25 assigns responsibility for maintaining water-based fire protection systems to the owner or designated representative. While the majority of owners will contract a service for some or all of the ITM, it is important that they have an understanding of the requirements of the standard. The Tips for Owners feature is intended to highlight the most important sections for owners to understand, whether they are performing some of the ITM tasks themselves or if they've contracted the service. New to the 2020 edition, the Tips for Owners have been compiled into a quick-reference table. Also new to the 2020 edition are Back to Basics introductions to the system chapters, followed by charts that display in an easy-to-read format the noncritical deficiencies, critical deficiencies, and impairments for each type of system.

In addition to the commentary and the features that enhance it are five supplements that take a deeper look at specific subjects. The subjects include fire pump testing and analysis (Supplement 1), NFPA 25 roles and responsibilities (Supplement 2), in-depth summaries on the role of the inspector (Supplement 3), the role of the owner (Supplement 4), and the role of the authority having jurisdiction (Supplement 5). These supplements are prepared by industry experts and technical committee members who use their experience and firsthand knowledge of these issues to better explain topics covered in NFPA 25. The handbook also includes a detailed list of the technical/substantive changes from the 2017 edition to the 2020 edition of NFPA 25, located before Part One (NFPA 25).

Acknowledgments

An NFPA Handbook is often a growing body knowledge that builds upon work on previous editions, and for that reason we must acknowledge all of those who have previously contributed or edited this handbook in past editions. For their work in contributing to the 2014 edition, we would like to acknowledge and thank Bob Caputo, Russ Leavitt, Bruce Clarke, Tracey Bellamy, Terry Victor, Gayle Pennel, Rich Ray, John Lake, and Bill Sheppard. We would also like to thank Byron Blake, Bill Koffel, John Munno, George Stanley, Tom Multer, Peter Petrus, Damon Pietraz, Josh Elvove, Cecil Bilbo, David Martinez, and Peter Schwab for sending in their photographs that were used throughout this book. For his work on updating to the 2017 edition, we would like to thank Jason Webb for reviewing the commentary through the entirety of the document: adding information where it lacked, clarifying existing text where needed.

Producing this handbook has taken a tremendous amount of effort on the part of a number of people on the NFPA staff as well. Specifically, we thank Debra Rose, Khela Thorne, Melanie Muto, Irene Herlihy, Alexandra DeConti, and Michela McShane, for their professionalism

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Last, but certainly not least, we would like to thank our families for giving us the motivation and the support to take on projects like this one.

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