THE NATIONAL BOARD

2019 NBIC

NATIONAL BOARD INSPECTION CODE

PART 4

PRESSURE RELIEF DEVICES

THE NATIONA

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NATIONAL BOARD INSPECTION CODE
2019 EDITION
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This code was developed under procedures accredited as meeting the criteria for American National Standards. The Consensus Committee that approved the code was balanced to ensure that individuals from competent and concerned interests had an opportunity to participate. The proposed code was made available for public review and comment, which provided an opportunity for additional public input from industry, academia, regulatory and Jurisdictional agencies, and the public-at-large.

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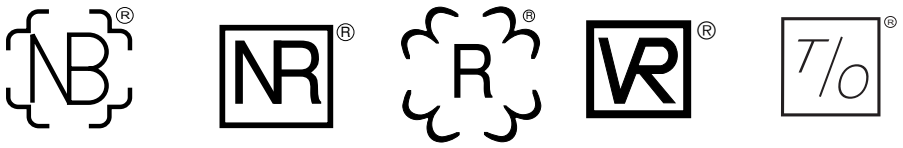

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"National Board" is the abbreviation for The National Board of Boiler and Pressure Vessel Inspectors.

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PART 4 — PRESSURE RELIEF DEVICES
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INTRODUCTION

It is the purpose of the *National Board Inspection Code* (NBIC) to maintain the integrity of pressure-retaining items by providing rules for post-construction activities including installation, and after the items have been placed into service, by providing rules for inspection and repair and alteration, thereby ensuring that these items may continue to be safely used.

The NBIC is intended to provide rules, information, and guidance to manufacturers, Jurisdictions, inspectors, owner-users, installers, contractors, and other individuals and organizations performing or involved in post-construction activities, thereby encouraging the uniform administration of rules pertaining to pressure retaining items.

SCOPE

The NBIC recognizes three important areas of post-construction activities where information, understanding, and following specific requirements will promote public and personal safety. These areas include:

- Installation
- Inspection
- Repairs and Alterations

The NBIC provides rules, information, and guidance for post-construction activities, but does not provide details for all conditions involving pressure-retaining items. Where complete details are not provided in this code, the code user is advised to seek guidance from the Jurisdiction and from other technical sources.

The words shall, should, and may are used throughout the NBIC and have the following intent:

- Shall – action that is mandatory and required.
- Should – indicates a preferred but not mandatory means to accomplish the requirement unless specified by others such as the Jurisdiction.
- May – permissive, not required or a means to accomplish the specified task.

ORGANIZATION

The NBIC is organized into four parts to coincide with specific post-construction activities involving pressure- retaining items. Each part provides general and specific rules, information, and guidance within each applicable post-construction activity. Other NBIC parts or other published standards may contain additional information or requirements needed to meet the rules of the NBIC. Specific references are provided in each part to direct the user where to find this additional information. NBIC parts are identified as:

- Part 1, Installation – This part provides requirements and guidance to ensure all types of pressure retaining items are installed and function properly. Installation includes meeting specific safety criteria for construction, materials, design, supports, safety devices, operation, testing, and maintenance.
- Part 2, Inspection – This part provides information and guidance needed to perform and document inspections for all types of pressure-retaining items. This part includes information on personnel safety, non-destructive examination, tests, failure mechanisms, types of pressure equipment, fitness for service, risk-based assessments, and performance-based standards.
- Part 3, Repairs and Alterations – This part provides requirements and guidance to perform, verify, and document acceptable repairs or alterations to pressure retaining items regardless of code of construction. Alternative methods for examination, testing, heat treatment, etc., are provided when the original code of construction requirements cannot be met. Specific acceptable and proven repair methods are also provided.
- Part 4, Pressure Relief Devices – This part provides information and guidance to ensure pressure relief devices are installed properly, information and guidance needed to perform and document inspections for pressure relief devices, and information and guidance to perform, verify, and document acceptable repairs to pressure relief devices.

Each NBIC part is divided into major sections as outlined in the Table of Contents.

Tables, charts, and figures provide relevant illustrations or supporting information for text passages, and are designated with numbers corresponding to the paragraph they illustrate or support within each section. Multiple tables, charts, or figures referenced by the same paragraph will have additional letters reflecting the order of reference. Tables, charts, and figures are located in or after each major section within each NBIC part.

TEXT IDENTIFICATION AND NUMBERING

Each page in the text will be designated in the top header with the publication's name, part number, and part title. The numbering sequence for each section begins with the section number followed by a dot to further designate major sections (e.g., 1.1, 1.2, 1.3). Major sections are further subdivided using dots to designate subsections within that major section (e.g., 1.1.1, 1.2.1, 1.3.1). Subsections can further be divided as necessary. Paragraphs under sections or subsections shall be designated with small letters in parenthesis (e.g., a), b), c)) and further subdivided using numbers in parenthesis (e.g., 1), 2), 3)).

Subdivisions of paragraphs beyond this point will be designated using a hierarchical sequence of letters and numbers followed by a dot.

Example: 2.1 Major Section
2.1.1 Section
2.1.2 Section
2.1.2. Subsection
a) paragraph
b) paragraph
1) subparagraph
2) subparagraph
a. subdivisions
1. subdivisions
2. subdivisions
b. subdivisions
1. subdivisions
2. subdivisions

Tables and figures will be designated with the referencing section or subsection identification. When more than one table or figure is referenced in the same section or subsection, letters or numbers in sequential order will be used following each section or subsection identification.

SUPPLEMENTS

Supplements are contained in each part of the NBIC to provide requirements and guidance only pertaining to a specific type of pressure-retaining item (e.g., Locomotive Boilers, Historical Boilers, Graphite Pressure Vessels.) Supplements follow the same numbering system used for the main text only preceded by the Letter "S." Each page of the supplement will be tabbed to identify the supplement number.

EDITIONS

Editions, which include revisions and additions to this code, are published every two years. Editions are permissive on the date issued and become mandatory six months after the date of issue.

CODE STAMPING

ASME Code "Stamping" referenced throughout the NBIC includes the ASME Boiler and Pressure Vessel Code Symbol Stamps used for conformity assessment prior to the 2010 edition/2011 addendum and the equivalent ASME Certification Mark with Designator required to meet the later editions of the ASME Boiler and Pressure Vessel Code Sections. When other construction codes or standards are utilized for repairs or alterations, stamping shall mean the identification symbol stamp required by that code or standard.

INTERPRETATIONS, CODE ADDITIONS AND CODE REVISIONS

The NBIC Committee meets regularly to consider requests for interpretations, revisions, and additions for this code. Interpretations are provided for each part and are specific to the code edition and addenda referenced in the interpretation. Interpretations provide clarification of existing rules in the code only and are not part of this code. Code revisions and additions are considered to accommodate technological developments, address administrative requirements, or to clarify code intent.

Interested parties may submit requests for interpretations, code revisions, and code additions through the National Board Business Center by following these steps:

1. Navigate to https://buscenter.nationalboard.org in your web browser;
2. Sign in to the Business Center (this may require creating an account);
3. Navigate to the NBIC tab and select “Make a Request”;
4. Select your request type; and
5. Fill out all fields in the request form and submit your request.

National Board staff will review all new requests before submitting them to the NBIC Committee for consideration at the next scheduled NBIC meeting.

JURISDICTIONAL PRECEDENCE

Reference is made throughout this code to the requirements of the “Jurisdiction.” Where any provision herein presents a direct or implied conflict with any Jurisdictional regulation, the Jurisdictional regulation shall govern.

UNITS OF MEASUREMENT

Both U.S. customary units and metric units are used in the NBIC. The value stated in U.S. customary units or metric units are to be regarded separately as the standard. Within the text, the metric units are shown in parentheses. In Part 2, Supplement 6 and Part 3, Supplement 6 regarding DOT Transport Tanks, the metric units are shown first with the U.S. customary units shown in parentheses.

U.S. customary units or metric units may be used with this edition of the NBIC, but one system of units shall be used consistently throughout a repair or alteration of pressure-retaining items. It is the responsibility of National Board accredited repair organizations to ensure the appropriate units are used consistently throughout all phases of work. This includes materials, design, procedures, testing, documentation, and stamping. The NBIC policy for metrication is outlined in each part of the NBIC.

ACCREDITATION PROGRAMS

The National Board administers four specific accreditation programs as shown below:

“**R**”…….Repairs and Alterations to Pressure-Retaining Items (NB-415)
“**VR**”……..Repairs to Pressure Relief Valves (NB-514)
“**NR**”……..Repair and Replacement Activities for Nuclear Items (NB-417)
“**T/O**”…….Testing of Pressure Relief Valves (NB-528)

The administrative requirements for the accreditation for these accreditation programs can be viewed on the National Board Website at www.nationalboard.org.

The National Board also administers accredits four specific inspection agency programs as shown below:

New Construction

National Board Acceptance of Authorized Inspection Agencies (AIA) *Accredited by the American Society of Mechanical Engineers* (ASME) (NB-360)

Inservice

Accreditation of Authorized Inspection Agencies (AIA) *Performing Inservice Inspection Activities* (NB-369)

Owner-User

Accreditation of Owner-User Inspection Organizations (OUIO) (NB-371)

Owners or users may be accredited for both a repair and inspection program provided the requirements for each accreditation program are met.

Federal Government

Accreditation of Federal Inspection Agencies (FIA) (NB-390)

These programs can be viewed on the National Board Website at www.nationalboard.org. For questions or further information regarding these programs contact the National Board by phone at (614) 888-8320 or by fax at (614) 847-1828.

CERTIFICATES OF AUTHORIZATION FOR ACCREDITATION PROGRAMS

Any organization seeking an accredited program may apply to the National Board to obtain a *Certificate of Authorization* for the requested scope of activities. A confidential review shall be conducted to evaluate the organization's quality system. Upon completion of the evaluation, a recommendation will be made to the National Board regarding issuance of a *Certificate of Authorization*.

Certificate of Authorization scope, issuance, and revisions for National Board accreditation programs are specified in the applicable National Board procedures. When the quality system requirements of the appropriate accreditation program have been met, a *Certificate of Authorization* and appropriate National Board symbol stamp shall be issued.