

NATIONAL BOARD PRESSURE RELIEF DEVICE CERTIFICATION ADMINISTRATIVE REQUIREMENTS

1.0 INTRODUCTION

The National Board Pressure Relief device certification program was developed in the mid-1930s in an effort to enhance safety to the industry and to the general public. At that time, when jurisdictional authorities expressed concern about relieving capacities, the National Board sponsored tests at The Ohio State University to compare the stamped and actual relieving capacities. They found large differences which prompted the National Board's membership to resolve that safety valves should be constructed to recognized standards and performance must be demonstrated by tests. At the request of the National Board, the American Society of Mechanical Engineers (ASME) appointed a special committee on safety valve requirements to cooperate with the National Board and developed construction requirements, quality standards and testing procedures.

2.0 SCOPE

2.1 This National Board program provides for the certification of pressure relief device designs and the accreditation of organizations that manufacture or assemble these devices. Accredited organizations are issued a certificate of authorization to apply the National Board "NB" symbol to devices of certified designs.

2.2 Technical requirements applied by this program to pressure relief devices are contained in standards called "construction codes." Abbreviations for these codes are listed below:

<u>Code Section</u>	<u>Construction Code</u>
I	ASME Boiler & Pressure Vessel Code (B&PVC) Section I
III	ASME (B&PVC) Section III
IV	ASME (B&PVC) Section IV
VIII	ASME (B&PVC) Section VIII

2.3 Organizations which have met the program requirements and have paid the proper administrative fees will be granted permission to use the National Board's "NB" mark on devices to denote certification by the National Board of the pressure relieving device design.

3.0 PROGRAM RULES AND PROCEDURES

3.1 ADMINISTRATION

Organizations desiring National Board certification and permission to use the "NB" mark shall apply to the National Board on forms available from the Pressure Relief Department. Manufacturers (as defined by the construction code) must supply all information as requested. Assemblers (as defined by the construction code) must indicate the valve manufacturer's name and valve type to be considered for certification.

3.2 QUALITY SYSTEM REQUIREMENTS

Each applicant shall have and maintain a quality system which shall establish that all of these rules and administrative procedures and applicable construction code requirements, including material control, fabrication, machining, welding, examination, setting, testing and inspection, will be met.

A written description of the system the applicant will use shall be available for review and shall contain, as a minimum, the features set forth by the construction code. The system shall include a description of the controls to ensure that the "NB" mark is applied to devices which have been certified in accordance with 3.3. This description may be brief or voluminous, depending upon the circumstances, and shall be treated confidentially.

A review for acceptance of the applicant's quality control system will be performed by a representative of the National Board. The review will include a demonstration of the implementation of the provisions of the applicant's quality system. Sample production devices will be selected for testing of performance and capacity.

Each applicant shall issue a controlled copy of the accepted quality system written description to the National Board. Except for changes which do not affect the quality system, revisions to the written description shall not be implemented until such revisions are accepted at any time by the National Board.

3.3 CAPACITY CERTIFICATION OF DEVICE DESIGNS

3.3.1 DESIGN REVIEW (MANUFACTURERS ONLY)

Before a design is tested by a manufacturer, it will be reviewed by the National Board to determine that all applicable mechanical and material requirements of the construction code have been considered and incorporated into the design as necessary. No testing for device certification will be performed on devices which do not meet these requirements.

3.3.2 INITIAL TESTING (MANUFACTURERS ONLY)

After completion of the design review per 3.3.1, tests of devices specified by the construction code shall be conducted to determine the certified rating which will be applied to the production device. Agreement shall be reached between the manufacturer and the National Board as to the number, sizes and set pressures of the devices to be tested. These tests will be performed for new designs or when an existing design is modified. Modifications of designs which affect the flow path, lift or performance characteristics must be reviewed by the National Board. Provisions for notifying the National Board of design changes shall be included in the applicant's quality system.

3.3.3 PRODUCTION TESTING

An applicant who has met the requirements of 3.1 and 3.2 may be granted permission to apply the National Board "NB" mark to production pressure relief devices (of designs for which initial testing has been completed) provided the following tests are successfully completed. This permission shall expire on the sixth anniversary of the date it is initially granted. This permission may be extended for 6 year periods if the following tests are successfully repeated within the 6 month period before expiration.

- (1) Two sample production pressure relief devices of a size and capacity within the capacity of a National Board accepted laboratory shall be selected by a National Board representative.
- (2) Operational and capacity tests shall be conducted in the presence of a National Board representative at a National Board accepted laboratory. The manufacturer or

assembler shall be notified of the time of the test and may have representatives present to witness the test.

- (3) Should any device fail to relieve at or above its certified capacity or should it fail to meet performance requirements of the construction code, the test shall be repeated at the rate of two replacement devices, selected in accordance with 3.3.3(1) for each valve that failed.
- (4) Failure of any of the replacement devices to meet the capacity or the performance requirements of this section shall be cause for revocation within 60 days of the permission to use the "NB" mark on that particular type of pressure relief device. During this period, the manufacturer or assembler shall demonstrate the cause of such deficiency and the action taken to guard against future occurrence, and the requirements of 3.3.3(1) above shall apply.
- (5) Production testing does not apply to power actuated pressure relief valves and Section III pressure relief valves. Additional demonstration of function tests may be required.

3.3.4 MARKING

When permission to apply the "NB" mark is received, the "NB" mark shall be applied to the nameplate using the National Board supplied stamp or a National Board approved facsimile along with the certified mark required by the construction code. The relieving capacity or flow resistance marked on the device shall be the value certified by the National Board as computed in accordance with the construction code. The arrangement of the marking is subject to National Board acceptance.

3.3.5 TRANSFER OF DESIGN CERTIFICATIONS

A manufacturer may request the results of the initial capacity testing (3.3.2) determined for one location be applied to a device type of identical design manufactured by the same organization at a different location. The following conditions must be met:

- (1) The manufacturer certifies to the National Board that the design is identical to the originally certified design and that the same production drawings are used at each location.
- (2) This system shall include provision to provide for the control of drawings and specifications between each location.
- (3) Device nameplate uniquely identifies the location of manufacture.
- (4) Each location must meet the production testing requirements of 3.3.3.

3.3.6 TRANSFER OF PERMISSION (RELOCATION)

Permission granted to a manufacturer or an assembler in accordance with 3.3.3 may be transferred to a new location when the organization relocated its facility within the same metropolitan area provided that:

- (1) Ownership, personnel and equipment are essentially unchanged,
- (2) Two pressure relief devices per test medium are selected for testing and satisfy the performance requirements of the construction code, and,
- (3) The requirements of 3.1 and 3.2 have been met.

3.4 LOCATION OF TESTING

All testing required by this procedure must be conducted at a facility and supervised by individuals who have been accepted by the National Board in accordance with established procedures. Tests shall be conducted in accordance with ASME PTC-25.

3.5 SPECIAL CIRCUMSTANCES

The above requirements do not cover all aspects of National Board capacity certification. For special circumstances not addressed above, including certification of device designs which exceed testing facility size and/or pressure limitations, please contact the National Board for more information.

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