

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 11-92

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Subj: Guidance for Acceptance of the National Board of Boiler and Pressure Vessel Inspectors (NBBI) National Board Inspection Code (NBIC) for Repairs and Alterations to Boilers and Pressure Vessels

1. **PURPOSE.** This circular provides guidance for Coast Guard acceptance of the National Board Inspection Code (NBIC) used by accredited repair organizations conducting repairs and alterations to pressure vessels and boilers subject to inspection by the Coast Guard under Title 46, Code of Federal Regulations., Subchapter F - Marine Engineering (46 CFR Parts 50-64).
2. **DIRECTIVES AFFECTED.** None.
3. **DISCUSSION.**
  - a. In 1968, the Coast Guard adopted the American Society of Mechanical Engineers' (ASME) Boiler and Pressure Vessel Code as the construction standard for pressure vessels and boilers. In 1982, adoption of the ASME Code was extended to include the ASME Code stamp to replace previous requirements for plan approval and shop inspection by the Coast Guard of class I, II, and III pressure vessels not containing hazardous substances. Later, in 1985, adoption of the ASME Code and the ASME Code stamp was expanded to include boilers. As a result, boilers and pressure vessels with the A, E, H, S, U and UM stamps are accepted with minimal Coast Guard involvement, accelerating the approval process and allowing Coast Guard inspection resources to be reinvested in other inspection areas. Current regulations require Coast Guard plan review, inspection, and testing of repairs and alterations to pressure vessels and boilers.
  - b. The National Board of Boiler and Pressure Vessel Inspectors (NBBI) is composed of chief inspectors of states and municipalities in the United States and of provinces of Canada that have adopted the ASME Code. Since its organization in 1919, the NBBI has functioned to uniformly administer the rules of the Boiler and Pressure Vessel Code. The NBBI repair and alteration program was conceived as a natural follow-on to the ASME program since ASME's jurisdiction ceases at completion of initial construction. The National Board program is similar in function and parallels the ASME program for new construction. The NBBI requires repairs and alterations to be in accordance with its own standards and the ASME Code. Only accredited repair organizations may perform repairs and alterations. Most repair organizations also hold one or more ASME stamps. Accreditation includes establishment of a Quality Assurance (QA) program, and periodic audits by the National Board. At completion of the repair, the repair organization must prepare and sign a form similar to the ASME Manufacturer's Data Report. All repair work is monitored and inspected by an authorized third party inspector who must establish his/her credentials through rigorous examinations. These inspectors are the

same people who perform inspections during new construction under the ASME Boiler and Pressure Vessel Code. There are more than 2000 inspectors authorized to perform inspections. Once the repairs or alterations are given final acceptance by the inspector, the item is marked by the accredited repair organization.

- c. The success of the ASME Code stamp program confirms the validity of third party inspection of boilers and pressure vessels. Pressure vessels containing hazardous materials as cargoes and pressure vessels in low temperature service are included in the NBIC acceptance program when they bear an ASME Code stamp because of their excellent performance record. Acceptance of the NBIC will streamline Coast Guard acceptance of repairs and alterations, improve efficiency, and result in manpower savings for the Coast Guard Marine Safety Center (MSC) and the local Officer-in-Charge Marine Inspection (OCMI).

4. IMPLEMENTATION.

- a. Coast Guard acceptance of the NBIC for repairs and alterations to boilers and pressure vessels, including pressure vessels containing hazardous materials as cargo and pressure vessels in low temperature service will be based on the guidance contained in this circular. Acceptance of the NBIC applies only to boilers and pressure vessels marked with an ASME Code stamp. Older boilers, pressure vessels, and cargo tanks marked only with the Coast Guard symbol are currently not included. [Note: G-MTH is working with the National Board to accept the Coast Guard symbol as equivalent to an ASME stamp, and thus bring older boilers, pressure vessels, and cargo tanks into the National Board program.]
- b. Plan review and inspection for repairs and alterations will continue to be conducted by the Coast Guard when specifically requested by the boiler or pressure vessel owner or user or when deemed necessary by the OCMI.
- c. A regulatory change will be initiated to adopt the NBIC for repairs and alterations to boilers and pressure vessels inspected by the Coast Guard, including pressure vessels containing hazardous materials as cargo.



A. E. HENN

Rear Admiral, U.S. Coast Guard  
Chief, Office of Marine Safety,  
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- End:
- (1) Guide for Acceptance of the NBIC for Repairs and Alterations
  - (2) Sample Application for National Board "R" Certificate of Authorization
  - (3) Sample Certificates of Authorization
  - (4) Sample Form R-1, Report of Welded Repair or Alteration

GUIDE FOR ACCEPTANCE OF THE NBIC  
FOR REPAIRS AND ALTERATIONS

I. DEFINITIONS

- A. *Accreditation* - The term *accreditation* means authorization to use the stamp bearing the official National Board Repair symbol granted by the National Board pursuant to the provisions of the National Board Inspection Code and identified by the Repair Certificate of Authorization.
- B. *Alteration* - An *alteration* is any change in the item described on the original Manufacturer's Data Report which affects the pressure containing capability of the boiler or pressure vessel. Nonphysical changes such as an increase in the maximum allowable working pressure or design temperature of a boiler or pressure vessel shall be considered an alteration. A reduction in minimum temperature such that additional mechanical tests are required shall also be considered an alteration. Rerating is considered an alteration whether or not any work is performed on the boiler or pressure vessel.
- C. *Authorized Inspector* - The term *Authorized Inspector (AI)* means a person who holds a valid National Board Commission and has qualified by written examination under the laws, rules and regulations of a jurisdiction of a state of the United States of America or a province of Canada and is regularly employed as an Inspector by an Authorized Inspection Agency.
- D. *Authorized Inspection Agency* - The term *Authorized Inspection Agency* means a jurisdiction which has adopted and administers the ASME Boiler and Pressure Vessel Code as a legal requirement and has a representative serving as a member of the ASME Conference Committee; or an insurance company which has been licensed or registered by the appropriate authority of a state of the United States or a province of Canada to write boiler and pressure vessel insurance in such state or province. A jurisdiction in this context is a city with a population of over 1 million, a state of the United States, or a province of Canada.
- E. *Inspector* - The term *Inspector* refers to an Authorized Inspector or Owner-user Inspector as defined in this circular.
- F. *National Board Of Boiler and Pressure Vessel Inspectors (NBBI)* - The NBBI is an organization comprised of Chief Inspectors of states and cities of the United States and provinces of Canada, and is organized for the purpose of promoting greater safety to life and property by securing concerted action and maintaining uniformity in the construction, installation, inspection, and repair of boilers and other pressure vessels and their appurtenances, thereby assuring acceptance and interchangeability among Jurisdictional Authorities responsible for the administration and enforcement of the various sections of the ASME Boiler and Pressure Vessel Code.
- G. *National Board Inspection Code (NBIC)* - The NBIC is the manual published by the NBBI to maintain the integrity of boilers and pressure vessels built in accordance with the ASME Code after they have been placed into service by providing rules and guidelines for inspection after installation, repair, alteration and rerating.

- H. *Owner-User* - The term *Owner-User* refers to the organization either owning or using the pressure vessel or boiler and initiating the repair or alteration process.
- I. *Owner-User Inspector* - The term *Owner-User Inspector* means a person who has qualified by written examination under the laws, rules and regulations of a jurisdiction of a state of the United States or a province of Canada, and is regularly employed as an Inspector by an Owner-User Inspection Agency.
- J. *Owner-User Inspection Agency* - The term *Owner-User Inspection Agency* means an owner or user of pressure vessels or boilers that maintains a regularly established inspection department, whose organization and inspection procedures meet the requirements of the National Board rules and are acceptable to the jurisdiction wherein the owner or user are located.
- K. "*R*" *Stamp* - The term "*R*" *Stamp* means the stamp applied to the nameplate of a boiler or pressure vessel repaired under the provisions of the NBIC. It is used in a manner similar to the ASME initial construction stamps. It is not applied to alterations.
- L. *Repair* - This term means any work necessary to restore a boiler or pressure vessel to a safe and satisfactory operating condition, provided there is no deviation from the original design.
- M. *Repair Organization* - The term *Repair Organization* refers to organizations that are:
  1. a holder of a valid National Board certificate authorizing the use of the "R" stamps; or
  2. the holder of a valid ASME Certificate of Authorization for use of the appropriate Code symbol stamp; or
  3. one which is otherwise authorized by the jurisdiction

## II. APPLICATION

- A. This circular provides guidance for Coast Guard acceptance of the NBIC for repairs and alterations to boilers and pressure vessels inspected by the Coast Guard under Title 46, Code of Federal Regulations, Subchapter F - Marine Engineering (46 CFR Parts 50-64). The NBIC augments the provisions of Part 59 - Repairs to Boilers, Pressure Vessels and Appurtenances. The recommendations in this circular are not mandatory. Owner-users may elect to have plan review and inspection conducted by the Coast Guard.
- B. Adoption of the NBIC applies only to repairs and alterations to boilers and pressure vessels built and stamped in accordance with the ASME Code, including pressure vessels containing hazardous materials as cargo and pressure vessels in low temperature service. Repairs to other boilers and pressure vessels, such as those bearing only the Coast Guard Symbol, will continue to be given Coast Guard plan review and inspection.
- C. The NBIC excludes boilers and pressure vessels used by the petroleum and chemical process industries by recognizing the American Petroleum Industry Recommended Practice RP-510, "Pressure Vessel Inspection Code: Inspection, Repair and Alteration." This exclusion does not affect boilers and pressure vessels inspected by the Coast Guard. For the purposes of Coast Guard inspection, the repair and alteration procedures of the NBIC may be applied to boilers and pressure vessels aboard vessels engaged in the petroleum and chemical process industries.

- D. It is the intent of this circular to encourage minimal Coast Guard involvement in the repair and alteration process conducive with the continued safety of personnel, property, and the environment.

### III. RESPONSIBILITIES

- A. The Officer-in-Charge, Marine Inspection (OCMI) is responsible for monitoring compliance with the NBIC and Coast Guard regulations for repairs and alterations in the Marine Inspection Zone. The OCMI must determine the Coast Guard's involvement in the repair or alteration of the equipment described in this circular with consideration for ensuring safety, maintaining the expertise of marine inspectors, and complying with the intent of this program.
- B. Professional engineers shall certify repair or alteration plans in accordance with 46 CFR Parts 52 and 54, including identifying compliance with the NBIC and Part 59. Special attention should be given to Coast Guard welding requirements, including preheat and postweld heat treatment, joint details, non-destructive examination, and toughness requirements.
- C. Inspectors must be satisfied that repairs and alterations are performed in accordance with the applicable standards, witness required tests, and assure that other functions deemed necessary to comply with the repair or alteration proposal have been performed.
- D. The repair organization is responsible for providing inspection, documentation and certification of the work, and ensuring prior acceptance of the procedures for the work.
- E. Inspectors, repair organizations, professional engineers approving repair or alteration plans, and equipment owners and users must recognize the importance of their roles and responsibilities and endeavor to confirm the validity of this program by conscientiously meeting the requirements of the NBIC, ASME Code, and Part 59 with respect to repairs and alterations.

### IV. PROCEDURES

- A. The procedures for acceptance of the NBIC are very similar to those for the ASME Code. Once a pressure vessel or boiler is identified for repairs or alterations the owner-user should contact the repair organization, inspector, and local OCMI. Owner-users of pressure vessels and boilers should consider the capabilities of the repair organization with respect to the nature of the repair or alteration and whether it will be conducted on-site or at the repair facility. All parties should agree on the scope of work to be performed. All repair or alteration proposals, plans and calculations must be submitted to the OCMI prior to beginning work on the pressure vessel or boiler. The OCMI should use this information to determine the appropriate level of Coast Guard involvement. The OCMI must determine what additional requirements are necessary, if any, to supplement the provisions of the NBIC. The OCMI will also evaluate any proposed alternative arrangements. A written proposal bearing a registered professional engineer's certification attesting to compliance with the NBIC and 46 CFR Part 59 may be accepted, at the OCMI's discretion, without further Coast Guard review. No acceptance or approval stamp should be applied to the repair or alteration plans and calculations unless plan review is conducted by the Coast Guard. User fees will be applied in

accordance with applicable guidelines and procedures prior to Coast Guard involvement in the repair and alteration process.

- B. Acceptance of the NBIC does not limit the existing authority of the OCMI. The OCMI may, if deemed necessary, require Coast Guard inspection and plan review either by Marine Inspection personnel or the Coast Guard Marine Safety Center. The OCMI may also require any additional testing or procedures to ensure the adequacy of the work. In any case, repairs and alterations must be performed in accordance with the requirements of 46 CFR part 59.
- C. Form R-1, Report of Welded Repair or Alteration, shall be prepared, signed and submitted as detailed in the NBIC for all repairs and alterations. A registered professional engineer must prepare and certify Form R-1 submitted for all alterations as meeting the requirements of the NBIC, ASME Code, part 59 and any other conditions imposed by the OCMI (see 46 CFR 52.01-5(a) and 54.01-5(e)). [Note: A professional engineer's certification is not required for alterations to heating boilers except under the conditions described in the NBIC or when otherwise mandated by the OCMI as an additional requirement.] Form R-1 may be submitted to the OCMI as the repair or alteration proposal. In all cases, the final completed form must be signed by the inspector then forwarded to the OCMI. The OCMI will review Form R-1 for completeness and to verify the work has been accepted by the attending inspector. A copy should be retained in the Coast Guard's vessel file with all repair or alteration plans and calculations.
- D. Marking in accordance with the NBIC is required for all repairs and alterations to the pressure vessels and boilers described in this circular. Markings under the provisions of the NBIC shall be applied when the work and testing are completed to the satisfaction of the inspector and the OCMI. The "R" stamp shall be applied to repairs only. Altered boilers or pressure vessels shall be marked by either stamping new information or attaching new nameplates as described in the NBIC. Reinstallation of equipment, if necessary, must be satisfactory to the OCMI.
- E. Acceptance of the provisions of the NBIC as described in this circular does not obviate plan review requirements for shipboard systems containing boilers or pressure vessels. Modification of system operating conditions due to repair or alteration of a boiler or pressure vessel within the system necessitates plan submittal and review as described in 46 CFR Part 59.
- F. An entry must be made in the Marine Safety Information System recording the Coast Guard's inspection efforts and the nature of the repair or alteration.

V. USER FEES

- A. The Coast Guard's involvement in the repair and alteration process remains a task for which user fees may be applied in accordance with the Omnibus Reconciliation Act of 1990.

**APPLICATION FOR NATIONAL BOARD "R" CERTIFICATE OF AUTHORIZATION TO REPAIR ASME AND NATIONAL BOARD STAMPED BOILERS AND PRESSURE VESSELS**

The National Board of Boiler and Pressure Vessel Inspectors  
 1055 Crupper Avenue  
 Columbus, Ohio 43229

OFFICIAL USE ONLY	
Repair symbol and certificate no. _____	
_____ (date issued)	_____ (date renewed/revised)
_____ (date expired)	_____ (personnel)

Gentlemen:

\_\_\_\_\_ (name of company) hereby attests that it can repair and can demonstrate the capability of repairing: \_\_\_\_\_

and makes application for a National Board of Boiler and Pressure Vessel Inspectors Certificate of Authorization permitting the use of a National Board Repair stamp for a period to be specified.

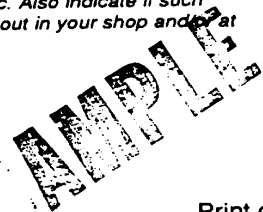
In consideration of receipt of said Repair ("R") stamp, the company agrees that the stamp shall be used only by the named company and in the manner prescribed in the National Board Inspection Code. The company further agrees to surrender the stamp and certificate immediately at any time the National Board may request. Further, the company agrees to surrender said stamp should it discontinue the above mentioned repair activities or no longer have a valid Certificate of Authorization in its possession. The company further agrees to pay any and all legal fees and National Board costs incurred in the recovery of said stamp and certificate if the above is not complied with and action is necessary. Further it is agreed that the authorized jurisdiction or the National Board may make audits or unannounced visits as deemed necessary to assure compliance with the rules of The National Board of Boiler and Pressure Vessel Inspectors.

UNDER NO CIRCUMSTANCES SHALL THE NATIONAL BOARD REPAIR SYMBOL STAMP BE USED WITHOUT THE ACCEPTANCE OF AN AUTHORIZED INSPECTOR.

**IMPORTANT**

The name and address of the Authorized Inspection Agency performing the company repair inspection service is: \_\_\_\_\_

*\*In this space describe the scope of your repair capabilities, e.g., boilers and/or pressure vessels, heat treatment, NDE, etc. Also indicate if such repairs are to be carried out in your shop and/or at field sites.*



\_\_\_\_\_  
 Company or corporate name (as to be issued)

\_\_\_\_\_  
 Address (physical) (as to be issued)

\_\_\_\_\_  
 City, state or province, country, zip codes (as to be issued)

\_\_\_\_\_  
 Mailing address (if applicable)

\_\_\_\_\_  
 Mailing city, state or province, country, zip code (if different from physical address)

Print or type: \_\_\_\_\_  
 Authorized representative

Signed: \_\_\_\_\_  
 Authorized representative

\_\_\_\_\_  
 Title Date

( ) \_\_\_\_\_  
 Telephone no.

(reverse side of form)

## Excerpts from the National Board Bylaws

### ARTICLE V NATIONAL BOARD CERTIFICATES OF AUTHORIZATION

#### SECTION 5.1 SCOPE OF CERTIFICATES OF AUTHORIZATION

In order to maintain the integrity of nuclear components, ASME boilers, pressure vessels, and pressure relief valves which require repair, modification or replacement, the National Board may issue certificates of authorization to organizations as follows:

##### 5.1.1 "R" Repair Stamp.

A certificate of authorization to repair ASME stamped boilers or pressure vessels constructed under the provisions of Sections I, IV or VIII (Divisions 1 and 2) may be issued to qualified organizations. Repairs shall be carried out in accordance with the requirements of the *National Board Inspection Code*.

#### SECTION 5.3 SUSPENSION OF CERTIFICATES OF AUTHORIZATION.

A National Board Certificate of Authorization may be suspended or withdrawn by the Executive Director of the National Board if, after investigation, it has been established that the organization to which such certificate was issued has failed to follow the requirement of these Bylaws and applicable rules.

#### SECTION 5.4 RECONSIDERATION AND APPEALS.

An applicant for or a holder of a National Board Certificate of Authorization may request reconsideration by the Executive Director and may appeal the original or any reconsidered decision regarding the issuance, suspension or withdrawal of such certificate to the National Board Board of Trustees whose decision on appeal shall be final. At the time of such appeal, the appellant may appear in person; may be represented by the person of his choice; and at his own expense may make a stenographic record of the proceeding, a copy of which shall be furnished to the National Board at no cost.





THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

*Certificate of Authorization*

Number - R \_\_\_\_\_



THIS IS TO CERTIFY that \_\_\_\_\_

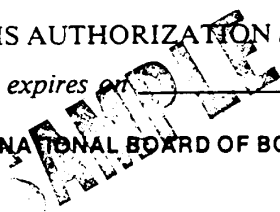
is hereby authorized to use the \_\_\_\_\_ Repair Symbol  
of The National Board of Boiler and Pressure Vessel Inspectors for

**"FIELD SITES ONLY AS CONTROLLED BY THE ABOVE LOCATION"**

*in accordance with the applicable rules of The National Board of Boiler and Pressure Vessel Inspectors. The use of the Repair symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any repair stamped with this symbol shall have been made strictly in accordance with the provisions of the National Board Inspection Code.*

THIS AUTHORIZATION issued or renewed on \_\_\_\_\_  
and expires on \_\_\_\_\_ by

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS



Chairman Ray A. Corcoran  
Executive Director J. M. Donohue  
Secretary Robert J. Smith



THE NATIONAL BOARD OF BOILER AND  
PRESSURE VESSEL INSPECTORS

*Certificate of Authorization*

Number - R \_\_\_\_\_

THIS IS TO CERTIFY that \_\_\_\_\_

is hereby authorized to use the \_\_\_\_\_ Repair Symbol  
of The National Board of Boiler and Pressure Vessel Inspectors for

**"NATIONAL BOARD CODE REPAIR AT THE ABOVE LOCATION"**

*in accordance with the applicable rules of The National Board of  
Boiler and Pressure Vessel Inspectors. The use of the Repair symbol  
and the authority granted by this Certificate of Authorization are  
subject to the provisions of the agreement set forth in the ap-  
plication. Any repair stamped with this symbol shall have been made  
strictly in accordance with the provisions of the National Board  
Inspection Code.*

THIS AUTHORIZATION issued or renewed on \_\_\_\_\_  
and expires on \_\_\_\_\_ by \_\_\_\_\_

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Chairman Ray A. Cooney

Executive Director J. M. Donald

Secretary Robert Smith



THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

*Certificate of Authorization*

Number - R \_\_\_\_\_

**SAMPLE**

THIS IS TO CERTIFY that \_\_\_\_\_

is hereby authorized to use the Repair Symbol  
of The National Board of Boiler and Pressure Vessel Inspectors for

**"NATIONAL BOARD CODE REPAIR AT THE ABOVE LOCATION AND EXTENDED FOR FIELD REPAIRS CONTROLLED BY THIS LOCATION"**

*in accordance with the applicable rules of The National Board of Boiler and Pressure Vessel Inspectors. The use of the Repair symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any repair stamped with this symbol shall have been made strictly in accordance with the provisions of the National Board Inspection Code.*

THIS AUTHORIZATION issued or renewed on \_\_\_\_\_

and expires on \_\_\_\_\_ by \_\_\_\_\_

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

**SAMPLE**

Chairman Ray A. Cooney

Executive Director D. J. McDonald

Secretary Alvin Jones



<b>DESIGN CERTIFICATION</b>
<p>The undersigned certifies that the statements made in this report are correct and that the design changes described in this report conform to the requirements of the National Board Inspection Code.</p> <p>ASME Certificate of Authorization no. _____ to use the _____ symbol expires _____, 19____.</p> <p>Date _____, 19____ Signed _____  <small>(name of organization) (authorized representative)</small></p>
<b>CERTIFICATE OF REVIEW OF DESIGN CHANGE</b>
<p>The undersigned, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the state or province of _____ and employed by _____ of _____ has examined the design change as described in this report and verifies that to the best of his knowledge and belief such change complies with the applicable requirements of the National Board Inspection Code. By signing this certificate, neither the undersigned nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection, except such liability as may be provided in a policy of insurance which the undersigned's insurance company may issue upon said object and then only in accordance with the terms of said policy.</p> <p>Date _____, 19____ Signed _____ Commissions _____  <small>(Authorized Inspector) (National Board (incl. endorsements), state, prov. and no.)</small></p>
<b>CONSTRUCTION CERTIFICATION</b>
<p>The undersigned certifies that the statements made in this report are correct and that all construction and workmanship on this _____ (repair or alteration) conform to the National Board Inspection Code.</p> <p>Certificate of Authorization no. _____ to use the _____ symbol expires _____, 19____.</p> <p>Date _____, 19____ Signed _____  <small>(repair or alteration organization) (authorized representative)</small></p>
<b>CERTIFICATE OF INSPECTION</b>
<p>The undersigned, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the state or province of _____ and employed by _____ of _____ has inspected the work described in this report on _____, 19____ and state that to the best of my knowledge and belief this work has been done in accordance with the National Board Inspection Code. By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection, except such liability as may be provided in a policy of insurance which the undersigned's insurance company may issue upon said object and then only in accordance with the terms of said policy.</p> <p>Date _____, 19____ Signed _____ Commissions _____  <small>(Authorized Inspector) (National Board (incl. endorsements), state, prov. and no.)</small></p>