Date Distributed:

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE SUBCOMMITTEE INSTALLATION

AGENDA

Meeting of July 9, 2025
Cincinnati, OH

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614) 888-8320
FAX: (614) 847-1828

1. **Call to Order**

   The meeting will be called to order at 8:00 a.m. Eastern Time, in Mt. Adams on the 4th floor of the hotel.

2. **Introduction of Members and Visitors**

3. **Check for a Quorum**

4. **Awards/Special Recognition**

5. **Announcements**

   - This meeting marks the end of Cycle B for the 2027 NBIC edition.
   - The National Board will be hosting a reception on Wednesday evening from 5:30 p.m. to 7:30 p.m. at Ault Park, on the 4th floor of the hotel.
   - The National Board will be hosting breakfast and lunch on Thursday for those attending the Main Committee meeting. Breakfast will be served from 7:00 a.m. to 8:00 a.m. in Madisonville A/B, and lunch will be served from 11:30 a.m. to 12:30 p.m. in Madisonville A/B.
   - Meeting schedules, meeting room layouts, and other helpful information can be found on the National Board website under the **NBIC** tab → NBIC Meeting Information.
   - The NBIC Committee has transitioned from NB File Share to SharePoint. Remember to add any attachments that you'd like to show during the meeting (proposals, reference documents, powerpoints, etc.) to the NBIC SharePoint site (nationalboard.sharepoint.com/sites/NBIC) **prior to the meeting**.
     - Note that access to the NBIC SharePoint site is limited to committee members only.
     - ALL powerpoint attachments/presentations must be sent to the NBIC Secretary for approval prior to the meeting.
     - Contact Jonathan Ellis (*nbicsecretary@nbbi.org*) for any questions regarding NBIC SharePoint access.
   - When possible, please submit proposals in Word format showing "strike through/underline." Project Managers: please ensure any proposals containing text from previous NBIC editions are updated with text from the most current edition.
   - If you'd like to request a new Interpretation or Action item, do so on the National Board Business Center.
     - Anyone, member or not, can request a new item.
   - As a reminder, anyone who would like to become a member of a group or committee:
     - Should attend at least two meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for voting during their third meeting.
     - The nominee must submit the formal request along with their resume to the NBIC Secretary **PRIOR TO** the meeting. *nbicsecretary@nbbi.org*
     - If needed, we can also create a ballot for voting on a new member between meetings.
   - Thank you to everyone who registered online for this meeting. The online registration is very helpful for planning our reception, meals, room setup, etc. It is also a good way to make sure we have the most up-to-date contact information. Please continue to use the online registration for each meeting.

6. **Adoption of the Agenda**

7. **Approval of the Minutes of the January 2025 Meeting**

   The minutes from the January 2025 meeting can be found on the NBIC Committee information page on the National Board's website, nbbi.org.

8. Review of Rosters (Attachment Page 1)

a. Membership Nominations

Mr. John Mirjalali (Manufacturers) and Mr. Bryan Ahee (Manufacturers) are interested in becoming a member of **SG Installation**.

b. Membership Reappointments

The following **Subgroup Installation** memberships are up for reappointment: Mr. Joe Brockman, Mr. Rodger Adams, Mr. Jeff Kleiss.

The following **Subcommittee Installation** memberships are up for reappointment: Mr. James Downs.

c. Officer Appointments

None.

9. Open PRD Items Related to Installation

a. R&A

i. **Item 24-18** – Definition of Controlled Fill (P. Gilston as PM)

b. PRD—No action taken on the PRD items.

i. **Item NB15-0305** – Create Guidelines for Installation of Overpressure Protection by System Design – D. Marek (PM).
ii. **Item NB15-0315** – Review isolation valve requirements in Part 1, 4.5.6 and 5.3.6 – D. DeMichael (PM)
iii. **Item 19-83** – Address Alternate Pressure Relief Valve Mounting Permitted by ASME CC2887-1 – D. Marek (PM)
iv. **Item 24-91** – Require means to prevent safety valve discharge piping blockage for LCDSV (Part 4)

10. Interpretations

Item Number: 25-11	**NBIC Location: Part 1, 3.8.2.4**	**Attachments Page 1**
General Description: External Low-Water Fuel Cutoff for Hot Water Heating Boilers **Subgroup:** SG Installation **Task Group:** None assigned. **Explanation of Need:** The valves proposed are a means to avoid draining the hot water boiler of its water just to test the low water fuel cutoff, we want to verify that they satisfy the requirements of the code.		
July 2025 Meeting Action:		

11. Action Items

Item Number: 22-28	NBIC Location: Part 1	Attachment Pages 2-4

General Description: Pool Heater supplement

Subgroup: SG Installation

Task Group: J. Kleiss (PM), R. Spiker, T. Creacy, and M. Byrum

Explanation of Need: The NBIC Installation and Inspection Codes do not have a definition for pool heaters. There is potential for confusion regarding which NBIC requirements, if any, should apply to pool heaters.

January 2025 Meeting Action: Progress Report

This item will be letter balloted to SG Installation with review and comment to SC Installation.

Item Number: 23-52	NBIC Location: Part 1, 2.5.3.2 and 3.5.3	Attachment Pages 5-7

General Description: Harmonize electrical requirements for most types of boilers/water heaters

Subgroup: SG Installation

Task Group: T. Clark (PM), S. Konopacki, J. Kleiss, R. Spiker, and Jon Choitz

Explanation of Need: Electrical requirements for power boilers, heating boilers, and water heaters are inconsistent, particularly regarding remote emergency shutdown switches. In some cases the requirements are the same, but worded or ordered differently. In order to promote better understanding of code requirements and consistency in their application, I propose making sections 2.5.3 and 3.5.5 as uniform as possible.

January 2025 Meeting Action: Passed

A motion was made and seconded to accept the attached proposal. After discussion and editorial revision a vote was taken and the motion carried unanimously. This will be sent to MC for letter ballot.

NOTE: This item is currently being balloted to the Main Committee, with a close date of July 9, 2025.

Item Number: 24-05	NBIC Location: Part 1, New Supplement	Attachment Pages 8-11

General Description: Add Heat Pump Water Heater & Heat Pump Hydronic Heater Supplement

Subgroup: SG Installation

Task Group: J. Kleiss (PM), Bryan Ahee

Explanation of Need: Heat pump water heating and hydronic heating are growing in prevalence. Guidance for installation and inspection of these products is needed.

January 2025 Meeting Action: Progress Report

This item will be balloted for review and comment to all four subgroups.

Item Number: 24-26	NBIC Location: Part 1, 3.7.8	No Attachment

General Description: NBIC Requirements for ASME Modular Water Heaters

Subgroup: SG Installation

Task Group: R. Spiker (PM), M. Byrum, J. Kleiss

Explanation of Need: ASME Section IV added requirements in the 2023 Edition for modular water heaters. The NBIC currently includes requirements for modular steam heating and hot-water heating boilers, but not for modular water heaters.

January 2025 Meeting Action: Progress Report

Work continues on this item.

Item Number: 24-56	NBIC Location: Part 1, S3.6.1	No Attachment

General Description: LCDSV Systems: Add Table and Figure

Subgroup: SG Installation

Task Group: M. Byrum (PM), R. Black

Explanation of Need: In accordance with the NBIC Policy For Metrication, metric units need to be shown alongside US customary units. Table S3.6.1 and Figure S3.6.1-b both show only US customary units. I recommend adding a Table S3.6.1M and Figure S3.6.1-bM to show metric units. I've also included some additional editorial recommendations.

July 2025 Meeting Action: Proposal

During the July 2024 Main Committee meeting, the Committee asked that this item be put on hold until a similar section in Part 2 could be updated. SG/SC Inspection needs action item to work on Part 2 S12.7.

Item Number: 24-89	NBIC Location: Part 1, S3.6 d)	No Attachment

General Description: Require means to prevent safety valve discharge piping blockage for LCDSV (Part 1)

Subgroup: SG Installation

Task Group: None assigned.

Explanation of Need: Adding verbiage to the NBIC Part 1, Part 2 and Part 4 to require a means to prevent foreign material introduction to the safety valve discharge pipe.

January 2025 Meeting Action: Closed with no action

A motion was made and seconded to close this item with no action since this will be handled by SG/SC PRD. After discussion a vote was taken and the motion carried unanimously.

Item Number: 24-97	NBIC Location: Part 1, 2.7.5	No Attachment

General Description: Anchoring of Threaded Blowdown Piping

Subgroup: SG Installation

Task Group: T. Clark, J. Choitz (PM), R. Spiker, R. Adams

Explanation of Need: An operator opened a blowdown valve located between a 90-degree elbow and the floor drain. The pressure released caused the piping to rotate at the elbow striking the operator and pressing him to the ground which resulted in his death. This could have been avoided if the piping was anchored at a point between the elbow and the discharge.

January 2025 Meeting Action: Progress Report

A motion was made and seconded to accept a proposal forwarded by SG Installation. After discussion the motion was withdrawn, and this item will be worked in parallel with Item 25-03.

Item Number: 24-102	NBIC Location: Part 1, 1.6.9	No Attachment

General Description: Strengthen requirements for Carbon monoxide monitoring

Subgroup: SG Installation

Task Group: Jim Byrum (PM) and all members SG Installation, Steve Schneeberger, Bryan Ahee

Explanation of Need: Approximately 50 to 75 percent of the Chief Boiler Inspectors have requested some version of the proposed text above to be included in the NBIC Part 1. Since this has not happened, in many jurisdictions the Chief Inspector has had to include requirements for interlocking Carbon Monoxide detectors with boilers to secure the burners when the detector senses CO. The NBIC is a Health and Safety Code and therefore should provide requirements that prevent the many injuries and deaths the Chief Boiler Inspectors across the U.S. have had to investigate.

January 2025 Meeting Action: Progress report

A task group was formed to work on this item.

Item Number: 25-03	NBIC Location: Part 1, 1.6.1 & 3.7.7.1	No Attachment

General Description: Create uniformity between sections on requirements for drains and blowoff pipes

Subgroup: SG Installation

Task Group: T. Clark (PM), J. Choitz, R. Spiker, R. Adams

Explanation of Need: Create uniformity between sections on requirements for drains and blowoff pipes

January 2025 Meeting Action: Progress Report

A task group was formed to work on this item

12. New Items:

Item Number: 25-07	NBIC Location: Part 1, S5.7.6 h)	Attachment Page 12

General Description: Organic fluid relief valves are installed with discharge to 55-gallon drum

Subgroup: SG Installation

Task Group: None assigned.

Submitted by: V. Scarcella

Explanation of Need: A 55-gallon drum is not designed for the temperatures or pressures of a relief valve discharge

July 2025 Meeting Action:

Item Number: 25-12	NBIC Location: Part 1, 2.7.5 and 3.7.7.1	No Attachment

General Description: Requirements for drain and blowoff lines

Subgroup: SG Installation

Task Group: None assigned.

Submitted by: J. Choitz

Explanation of Need: Create uniformity between sections on requirements for drains and blowoff pipes.

July 2025 Meeting Action:

Item Number: 25-15	NBIC Location: Part 1, S3.6.1	No Attachment

General Description: LCDSV Systems: Add Table and Figure

Subgroup: SG Installation

Task Group: None assigned.

Submitted by: M. Byrum

Explanation of Need: In accordance with the NBIC Policy For Metrication, metric units need to be shown alongside US customary units. Table S3.6.1 and Figure S3.6.1-b both show only US customary units. I recommend adding a Table S3.6.1M and Figure S3.6.1-bM to show metric units.

July 2025 Meeting Action:

Item Number: 25-24	NBIC Location: Part 1, 3.8.1.5 and 3.8.2.4	Attachment Page 13

General Description: Clearly state no time delay on the flow switches on a loss of flow.

Subgroup: SG Installation

Task Group: None assigned.

Submitted by: T. Bolden

Explanation of Need: One of the primary causes of boiler failure is a low water condition. Time delays in testing these safety controls can complicate their assessment and will not mitigate the failure rates associated with low water conditions. Note this also needs to apply to flow switches on forced flow units.

July 2025 Meeting Action:

Item Number: 25-33	NBIC Location: Glossary	No Attachment

General Description: Revise definition "Field" in the Glossary of Terms

Subgroup: SG Installation

Task Group: None assigned.

Submitted by: J, Kleiss

Explanation of Need: ASME CA-1 Conformity Assessment Requirements is replacing the use of "Temporary Location" with "Secondary Location". The proposed revision is intended to maintain agreement in terminology between NBIC and ASME.

July 2025 Meeting Action:

13. Future Meetings

- January 12-15, 2026 – New Orleans, LA

14. Adjournment

Respectfully submitted,

Thomas P. Beirne
Subcommittee Installation Secretary

NBIC Interpretation Item I25-11
Submitted by Christian Hobbs (chobbs@gov.nl.ca)
4/8/2025

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	External Low-Water Fuel Cutoff for Hot Water Heating Boilers
NBIC Location:	2023 NBIC, Part 1, 3.8.2.4 d)
Statement of Need:	The valves proposed are a means to avoid draining the hot water boiler of its water just to test the low water fuel cutoff, we want to verify that they satisfy the requirements of the code.
Background Information:	A client has proposed using these "Test-N-Check" valves that are intended to be installed at the cross in the external piping above and below the low water cutoff device. We are concerned about the longevity and verification of the spring-loaded action to return the valves to normal position after testing the device and are curious if these valves satisfy the automatic return requirement. I will provide an info sheet of the valves in question.
Proposed Question:	Would a spring-loaded flapper "check" valve be considered as a temporary means to isolate the device that will automatically return to its normal position?
Proposed Reply:	Yes - a spring-loaded flap would be considered automatic No - a different method of returning to normal position is considered automatic
Committee's Question:	<Question(s) the committee will interpret. Can be the same wording as the proposed question>
Committee's Reply:	<Yes or no response>
Rationale:	<Additional clarification for response>

Item 22-28

SUPPLEMENT XX

POOL HEATERS

SXX.1 SCOPE

NBIC Part 1, Supplement XX provides requirements for various aspects of the installation of Pool Heaters which are unique from other products covered by this section.

Pool Heaters are appliances designed for heating non-potable water stored at atmospheric pressure, such as water in swimming pools, spas, hot tubs, or similar applications. The installation requirements are different for:

a) Direct-type Pool Heaters, in which the heat is exchanged directly from the combustion products to the pool water. Direct-type Pool Heaters may be non-Code if they cannot be isolated from the pool, spa or tub that is open to atmosphere. ASME marked direct-type Pool Heaters may bear either the H or HLW designator.

b) Indirect-type Pool Heaters, in which the heat is exchanged directly from the combustion products to a heat transfer medium and a secondary heat exchanger transfers heat from the heat transfer medium to the pool water. The primary heat source for an indirect-type pool Heater is connected to a small closed loop system and as such is a water boiler and should meet all the requirements for water boiler installations.

SXX.2 WATER

a) Water fill connections shall be installed. A means shall be provided at or near the direct-type pool heater to prevent backfeeding. Such means shall be rated for the direct-type pool heater design pressure and temperature.

b) Provision should also be made in every equipment room for a convenient water supply that can be used to flush out the direct-type pool heater and to clean the equipment room floor.

Since direct-type pool heaters are connected to a body of water that is exposed to atmosphere, expansion tanks and pressure reducing valves are not required. See Figure SXX.2 Pool Heaters in Battery — Acceptable Piping Installation.

SXX.3 DRAIN VALVES

a) Each direct-type pool heater shall have a bottom drain pipe connection fitted with a valve or cock connected with the lowest water space practicable. The minimum size bottom valve shall be NPS 3/4 (DN 20).

b) Any discharge piping connected to the bottom drain connection shall be full size to the point of discharge.

SXX.4 TEMPERATURE CONTROLS AND THERMOMETERS

Pool Heaters shall not allow water supplied directly to the pool above 140°F (60°C).

SXX.5 PRESSURE RELIEF VALVES

For Direct-type pool heaters:

a) Pressure relief valves shall be manufactured in accordance with a national or international standard and be certified for capacity by the National Board.

Commented [TGC1]: Should there be a hyphen between direct and type, e.g. “Direct-type Pool Heater”? If so, the same would be true for “Indirect-type”.

Commented [JK2R1]: While there is some inconsistency within Part 1, the predominant style is as you suggest. I have made the recommended revisions throughout the document.

Commented [TGC3]: Should there be a hyphen between direct and type, e.g. “Direct-type Pool Heater”? If so, the same would be true for “Indirect-type”.

Commented [JK4R3]: While there is some inconsistency within Part 1, the predominant style is as you suggest. I have made the recommended revisions throughout the document.

Commented [TGC5]: I would recommend striking this text. We don’t comment on labeling, listing, or stamping for other types of equipment. Those would be jurisdictional requirements.

Commented [JK6R5]: This section contains some of the information that I most wanted to communicate to boiler inspectors. I have attempted removing the reference to CSA/ANSI.

Commented [JK7]: First ballot: Marvin Byrum advised that, “non-code vessels should not be mentioned in this code supplement. They are not allowed.” I responded, “I would be happy to discuss this with you further.
Non-ASME code pool heaters do exist. The CSA/ANSI safety certification standard for pool heaters does not require ASME construction as it does for pool heaters and water heaters.
Pool heaters are different from boilers and water heaters. They have lower operating temperature limits and may be connected to open vessels with no means of isolation from those vessels.”

Commented [JK8]: First ballot: H. Michael Richards recommended removing (b), “this is a 'housekeeping item and not in the scope of the document.” My reply to the comment, “Similar requirements to S12.2 b) currently exist in clauses 2.4.4 and 3.5.1 c). Please reply if you still feel this clause should be removed.” No further communication.

Commented [JK9]: First ballot: Rodger Adams comments interpreted as recommendation to replace references to sections in Part 1 with exceptions with straight forward instruction regarding what is allowed. Revisions made accordingly.

Commented [JK10]: First ballot: Rodger Adams comments interpreted as recommendation to replace references to sections in Part 1 with exceptions with straight forward instruction regarding what is allowed. Revisions made accordingly.

Commented [JK11]: First ballot: Rodger Adams comments interpreted as recommendation to replace references to sections in Part 1 with exceptions with straight forward instruction regarding what is allowed. Revisions made accordingly.

b) Each direct-type pool heater shall have at least one National Board capacity certified pressure relief valve, of the automatic reseating type set to relieve at or below the maximum allowable working pressure of the boiler.

c) Direct-type pool heaters may have, in lieu of the valve(s) specified in b) above, one or more National Board capacity certified temperature and pressure relief valves of the automatic reseating type set to relieve at or below the maximum allowable working pressure of the boiler.

d) When more than one pressure relief valve is used on a direct-type pool heater, the additional valves shall be National Board capacity certified and may have a set pressure within a range not to exceed 6 psig (40 kPa) above the maximum allowable working pressure of the boiler up to and including 60 psig (414 kPa), and 5% for those having a maximum allowable working pressure exceeding 60 psig (414 kPa).

e) No pressure relief valve shall be smaller than NPS 3/4 (DN 20) nor larger than NPS 4 (DN 100), except that boilers having a heat input not greater than 15,000 Btu/hr (4.4 kW) should be equipped with a rated pressure relief valve of NPS 1/2 (DN 15).

f) The required relieving capacity, in lbs/hr (kg/hr), of the pressure relief device or devices on a Direct-type pool heater shall be the greater of that determined by dividing the maximum output in Btu/hr (Watts) at the boiler nozzle obtained by the firing of any fuel for which the unit is installed by 1,000 Btu/lb (645 W-hr/kg).

g) When operating conditions are changed, or additional heating surface is installed, the valve capacity shall be increased, if necessary, to meet the new conditions and shall be in accordance with NBIC Part 1, SXX.5 h). The additional valves required, on account of changed conditions, may be installed on the outlet piping provided there is no intervening valve.

h) Pressure relief valve capacity for each direct-type pool heater with a single pressure relief valve shall be such that, with the fuel burning equipment installed and operated at maximum capacity, the pressure cannot rise more than 10% above the maximum allowable working pressure. When more than one pressure relief valve is used, the over pressure shall be limited to 10% above the set pressure of the highest set valve allowed by NBIC Part 1, SXX.5 d).

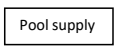
SXX.6 CONDENSING POOL HEATERS

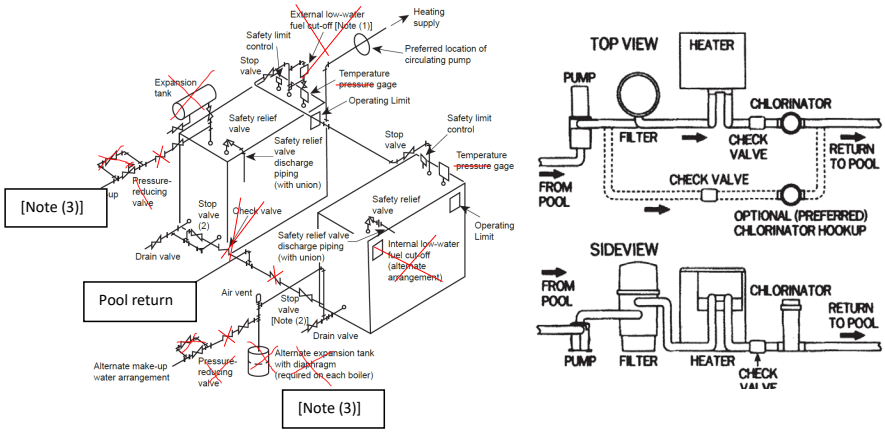
All condensing pool heaters shall comply with the requirements in Supplement 6 for Condensing Boilers. Since pool heaters are often installed near chemicals used for pool maintenance, special care is needed to ensure that intake air for the pool heaters is not contaminated with chlorine or other fumes that will increase the acidity of condensate and result in harm to the pool heater or venting.

SXX.7 CHIMNEY OR STACK

See NBIC Part 1, Section 1.6.8, *Chimney or Stack*.

FIGURE SXX.1
[Notes for NBIC editor/graphics: This image is taken from the water boiler piping diagram. Remove low-water cutoffs. Remove expansion tank and associated piping. Remove check valves. Replace "temperature pressure gauge" with "temperature gauge".]
POOL HEATERS IN BATTERY − ACCEPTABLE PIPING INSTALLATION





General Notes:

(1) Recommended control. Acceptable shutoff valve or cocks in the connecting piping may be installed for convenience or control testing and/or service.

(2) The common return header stop valves may be located on either side of the check valves.

(3) Make-up water may alternatively be added to the pool rather than at the return.

2.5.3 ELECTRICAL

A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler so that the boiler can be disconnected from all sources of potential energy. This disconnecting means shall be an integral part of the boiler or adjacent to it.

2.5.3.1 WIRING

All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler or boilers should be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.

2.5.3.2 REMOTE EMERGENCY SHUTDOWN SWITCHES

~~a)~~ A manually operated remote emergency shutdown switch~~(es)~~ or circuit breaker shall be ~~located just outside the equipment room door~~ provided and marked for easy identification. ~~Consideration should also be given to the type and location of the switch(es) in order to safeguard against tampering. Where approved by the Jurisdiction, alternate locations of remote emergency switch(es) may be provided.~~

a) The default location for the switch or circuit breaker shall be just outside the boiler room door, though the following factors must be considered when determining the appropriate location and number of switches to be installed:

1) If the equipment room door is on the building exterior, the switch should be located just inside the door.

2) ~~b)~~ For equipment rooms exceeding 500 ft.$_2$ (46 m$_2$) floor area or containing one or more boilers having a combined fuel capacity of 1,000,000 Btu/hr. (293 kW) or more, additional manually operated remote emergency shutdown switches shall be located at suitably identified points of egress acceptable to the Jurisdiction.

3) ~~c)~~ Where a boiler is located indoors in a facility and not in an equipment room, a remote emergency shutdown switch shall be located within 50 ft. (15 m) of the boiler along the primary egress route from the boiler area.

4) Additional consideration should be given to the type and location of the switch(es) in order to facilitate proper operation and safeguard against tampering. Where approved by the Jurisdiction, alternate locations of remote emergency shutdown switch(es) may be provided.

5) For utility boilers or other large scale units operated from a control room, the switch should be installed in a location immediately accessible to the operator.

~~d)~~ b)For atmospheric-gas burners and for oil burners where a fan is on the common shaft with the oil pump, the ~~emergency~~ remote emergency shutdown switch~~(es)~~ or circuit breaker~~(s)~~ must disconnect all power to the burner controls.

~~e)~~ c)For power burners with detached auxiliaries, the ~~emergency~~ remote emergency shutdown switch~~(es)~~ or circuit breaker~~(s)~~ need only shut off the fuel input to the burner.

~~f) When existing boiler installations do not include remote emergency shutdown switches, it is not required that these switches be retroactively installed unless required by the Jurisdiction.~~

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3.5.3 ELECTRICAL

A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler or water heater so that the boiler or water heater can be disconnected from all sources of potential energy. This disconnecting means shall be an integral part of the boiler or water heater or adjacent to it.

3.5.3.1 WIRING

All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler(s) or water heater(s) should be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.

3.5.3.2 REMOTE EMERGENCY SHUTDOWN SWITCHES~~3.5.3.1 STEAM HEATING, HOT WATER HEATING, AND HOT WATER SUPPLY BOILERS~~

~~a) All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler or boilers shall be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.~~

~~b) A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler so that the boiler can be disconnected from all sources of potential. This disconnecting means shall be an integral part of the boiler or adjacent to it.~~

~~c)~~ A manually operated remote emergency shutdown switch or circuit breaker shall be ~~located just outside the equipment room door~~ provided and marked for easy identification. ~~Consideration should also be given to the type and location of the switch to safeguard against tampering.~~

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a) The default location for the switch or circuit breaker shall be just outside the boiler room door, though the following factors must be considered when determining the appropriate location and number of switches to be installed:

1) ~~d)~~ If the equipment room door is on the building exterior, the switch should be located just inside the door. ~~If there is more than one door to the equipment room, there should be a switch located at each door of egress.~~

2) For equipment rooms exceeding 500 ft.^{2} (46 m^2) floor area or containing one or more boilers and/or water heaters having a combined fuel capacity greater than or equal to 1,000,000 Btu/hr. (293 kW), additional manually operated remote emergency shutdown switches shall be located at suitably identified points of egress acceptable to the Jurisdiction.

3) Where a boiler or water heater is located indoors in a facility and not in an equipment room, a remote emergency shutdown switch shall be located within 50 ft. (15 m) of the boiler along the primary egress route from the equipment area.

4) Additional consideration should be given to the type and location of the switch(es) in order to facilitate proper operation and safeguard against tampering. Where

approved by the Jurisdiction, alternate locations of remote emergency shutdown switch(es) may be provided.

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1) b)For atmospheric-gas burners, and oil burners where a fan is on a common shaft with the oil pump, the complete burner and controls should be shut off the remote emergency shutdown switch or circuit breaker must disconnect all power to the burner controls.

2) c)For power burners with detached auxiliaries, only the fuel input supply to the firebox need to be shut off the remote emergency shutdown switch or circuit breaker need only shut off the fuel input to the burner.

3.5.3.2 POTABLE WATER HEATERS

a) All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the potable water heaters shall be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.

b) A manually operated remote shutdown switch or circuit breaker shall be located just outside the equipment room door and marked for easy identification. Consideration should also be given to the type and location of the switch to safeguard against tampering.
c) A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the heater so that the heater can be disconnected from all sources of potential. This disconnecting means shall be an integral part of the heater or adjacent to it.

d) If the equipment room door is on the building exterior, the switch should be located just inside the door. If there is more than one door to the equipment room, there should be a switch located at each door of egress.

1) For atmospheric-gas burners, and oil burners where a fan is on a common shaft with the oil pump, the complete burner and controls should be shut off.

2) For power burners with detached auxiliaries, only the fuel input supply needs be shut off.

Item 24-05

Proposed NBIC Part 1 Changes

HEAT PUMP WATER HEATERS & HEAT PUMP HYDRONIC HEATERS

For information only, Proposal summary:

Heat pump water heating and heat pump hydronic heating are growing in frequency, heating capacity and capability. The proposal is a step toward incorporation of heat pump technology in the NBIC code.

When the code makes no distinction between units based on the heat source (such as in clause 3.5.3.3) the proposal is to remove the specific heat sources from the text.

When electrical power input is relevant to the code, remove “combustion” and replace “fuel source” with “energy source”.

Finally, the terms in the Glossary for “Potable Water Heaters” currently includes some combinations of design characteristics that are better expressed separately as each feature may influence applicable requirements.

	Storage-type	Circulating or instantaneous
Fired (gas or oil)		
Electric Resistance		
Heat pump		

Note: The proposal suggests that heat pump water heaters with backup resistance heating elements be treated as electric resistance water heaters because the maximum temperature output from a resistance heating element is much higher than a heat pump; therefore, the requirements should be based on the greatest source of risk.

Proposed NBIC Part 1 Changes

HEAT PUMP WATER HEATERS & HEAT PUMP HYDRONIC HEATERS

PART 1, SECTION 3

INSTALLATION — STEAM HEATING BOILERS, HOT-WATER HEATING BOILERS, HOT-WATER SUPPLY BOILERS, AND POTABLE WATER HEATERS

3.5 SOURCE REQUIREMENTS

3.5.3 ELECTRICAL

3.5.3.3 CONTROLS AND HEAT GENERATING APPARATUS

a) ~~Oil- and gas-fired and electrically heated boilers~~Boilers and water heaters shall be equipped with suitable primary (flame safeguard) safety controls, safety limit controls, and burners or electric elements as required by a nationally or internationally recognized standard.

b) The symbol of the certifying organization that has investigated such equipment as having complied with a nationally recognized standard shall be affixed to the equipment and shall be considered as evidence that the unit was manufactured in accordance with that standard.

c) These devices shall be installed in accordance with jurisdictional and environmental requirements, manufacturer's recommendations, and/or industry standards, as applicable.

3.8 INSTRUMENTS, FITTINGS, AND CONTROLS

3.8.3 POTABLE WATER HEATERS

3.8.3.1 TEMPERATURE CONTROLS

Each individual ~~automatically fired~~ water heater, in addition to the operating control used for normal water heater operation, shall have a separate high limit temperature actuated ~~combustion~~ control that will automatically cut off the ~~fuel supply~~energy source. The temperature range of the high limit temperature actuated control shall not allow a setting over 210°F (99°C).

a) On gas-fired water heaters, the high limit temperature control, when actuated, shall shut off the fuel supply with a shutoff means other than the operating control valve. Separate valves may have a common body.

b) On electrically heated water heaters, the high limit temperature control when actuated shall cut off all power to the electric resistance elements, heat pump compressor or both~~operating controls~~.

c) On oil-fired water heaters, the high limit temperature control when actuated shall cut off all current flow to the burner mechanism.

d) On indirect water heating systems, the high limit temperature control when activated shall cut off the source of heat.

PART 1, SECTION 9
INSTALLATION — GLOSSARY OF TERMS

9.1 DEFINITIONS

For the purpose of applying the rules of the NBIC, the following terms and definitions shall be used herein as applicable to each part:

Additional terms and definitions specific to DOT Transport Tanks are defined in NBIC Part 2, Supplement 6.

Potable Water Heaters — A corrosion resistant appliance that includes the controls and safety devices to supply potable hot water at pressure not exceeding 160 psig (1,100 kPa) and temperature not in excess of 210°F (99°C).

Fired ~~Storage~~ Water Heater — A potable water heater in which water is heated by electric~~ity~~ resistance heating elements, the combustion of solid, liquid, or gaseous fuels ~~and stores water within the same appliance~~.

Heat Pump Water Heater – A potable water heater in which water is heated only by a heat pump.

Heat Pump Water Heater with Electric Resistance Heating Elements – See Fired Water Heater.

Indirect Fired Water Heater — A potable water heater in which water is heated by an internal coil or heat exchanger that receives its heat from an external source. Indirect fired water heaters provide water directly to the system or store water within the same appliance.

Circulating Water Heater — A potable water heater which furnishes water directly to the system or to a separate storage tank. Circulating water heaters may be either natural or forced flow.

Storage Water Heater — A potable water heater in which water is heated and stored water within the same appliance.

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NBIC Action Item A25-07
Submitted by Vincent Scarcella (Vincent.scarcella@cna.com)
3/10/2025

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	Organic fluid relief valves are installed with discharge to 55 gallon drum
NBIC Location:	2023, Part 1, S5.7.6 h)
Statement of Need:	A 55-gallon drum is not designed for the temperatures or pressures of a relief valve discharge.
Background Information:	We are finding installations with relief valves discharging to 55 Gallon drums.

Proposed Text:

S5.7.6 INSTALLATION

h) The pressure relief valve discharge shall be connected to a closed, vented storage tank with solid piping (no drip pan elbow or other air gap). The storage tank should be located as close to the system as possible, but away from flammable surfaces. Overflow or high level protection should be considered. The capacity of the storage tank should consider the volume of fluid which may be relieved or sized in accordance with the heater manufacturer's recommendation. Storage tanks located outdoors shall be located such that water cannot collect in the vessel. The vented storage tank shall be designed and installed to endure the pressures and temperatures that occur if all relief valves activate. The following shall be considered for discharge piping hazards:

1) Both thermal and chemical reactions (personnel hazard);
2) Combustible materials (fire hazard);
3) Surface drains (pollution and fire hazard); and
4) Heat tracing for systems using high freeze point fluids (prevent blockage).

NBIC Action Item A25-24
Submitted by Tim Bolden (timothy.bolden@cna.com)
June 26, 2025

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	Clearly state no time delay on the flow switches on a loss of flow.
NBIC Location:	2025 Part 1, 3.8.1.5 and 3.8.2.4
Statement of Need:	One of the primary causes of boiler failure is a low-water condition. Time delays in testing these safety controls can complicate their assessment and will not mitigate the failure rates associated with low water conditions. Note this also needs to apply to flow switches on forced flow units.
Background Information:	I have been informed some Manufacturers may be moving in the direction to add time delays to these safety features prior to having them cut off the burner.

Proposed Text:

3.8.1.5 AUTOMATIC LOW-WATER FUEL CUTOFF AND WATER FEEDING DEVICE

a) Each automatically fired steam boiler shall have an automatic low-water fuel cutoff. The low-water fuel cutoffs must be located to automatically cut off the fuel supply ~~when the surface of~~as soon as the water falls to a level not lower than the lowest visible part of the water-gage glass. If a water feeding device is installed, it shall be so constructed that the water inlet valve cannot feed water into the boiler through the float chamber and so located as to supply requisite feedwater.