



*THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS*

NATIONAL BOARD INSPECTION CODE SUBCOMMITTEE INSTALLATION

MINUTES

Meeting of January 15, 2025
Charleston, SC

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
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1. **Call to Order** The meeting was called to order by Chair Don Patten at 8:01 AM.
2. **Introduction of Members and Visitors** A list of members and visitors is shown in Attachments Page 1
3. **Check for a Quorum** Meeting attendance indicates having quorum.
4. **Awards/Special Recognition**
Matt Downs – 5 years on SC Installation
5. **Announcements**
 - This meeting marks the end of Cycle A 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 the Hyatt Place rooftop bar, the Pour Taproom.
 - 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 Grand Magnolia Foyer, and lunch will be served from 11:30 a.m. to 12:30 p.m. in Sterling Hall Foyer.
 - 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** A motion was made and seconded to adopt the agenda with the addition of item 25-03 and addition of Jeff Kleiss for consideration of membership for SC Installation. There was no discussion. A vote was taken and motion unanimously carried.
7. **Approval of the Minutes of the July 17, 2024, Meeting**

A motion was made and seconded to approve the minutes from the July 17, 2024 meeting. There was no discussion. A vote was taken and motion unanimously carried.

8. Review of Rosters (Attachment Page 1)

a. Membership Nominations

Mr. Howard Berny is interested in joining **Subgroup Installation**. A motion was made and seconded to approve Mr. Berny's appointment to SG Installation. After discussion a vote was taken and the motion unanimously carried.

Mr. Jeff Kleiss is interested in joining **Subcommittee Installation**. A motion was made and seconded to recommend to Main Committee that Mr. Kleiss be appointed to SC Installation. After discussion a vote was taken and the motion unanimously carried.

b. Membership Reappointments

The following **Subgroup Installation** memberships are set to expire prior to the July 2025 meeting: Mr. Ron Spiker. A motion was made and seconded to approve Mr. Spiker's reappointment to SG Installation. After discussion a vote was taken and the motion unanimously carried.

The following **Subcommittee Installation** memberships are set to expire prior to the January 2025 meeting: Mr. Tom Clark and Mr. Don Patten. Both indicated desire to be reappointed. Their reappointment is on the Main Committee agenda for action.

c. Officer Appointments

Mr. Patten's term as Chair ends on January 31, 2025. He is eligible for reappointment to the position. Mr. Patten indicated he was interested in serving another term as chair. Additionally, the question was asked if other candidates were interested in the position. No other candidates expressed interest. A motion was made and seconded to recommend to Main Committee that Mr. Patten be reappointed Chair of SC Installation. After discussion a vote was taken and the motion unanimously carried.

9. Presentations-Quick Acting Closure Presentation via Teams.

10. Open PRD Items Related to Installation

a. R&A

- i. **Item 24-18** – Definition of Controlled Fill (P. Gilston as PM) – **Attachment Page 2** A motion was made and seconded to accept the proposal. After discussion, a vote was taken and motion carried unanimously.

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)

11. Interpretations

There are currently no Part 1 interpretation items.

12. Action Items

Item Number: 20-86	NBIC Location: Part 1, 2.10.1 a)	See attachment pg. XX
<p>General Description: Testing and Acceptance: Boil-out Procedure</p> <p>Subgroup: SG Installation</p> <p>Task Group: D. Patten (PM), S. Konopacki, and R. Spiker</p> <p>Explanation of Need: This was brought to my (Mr. Eddie Wiggins) attention by Ernest Brantley. Mr. Brantley indicated during an acceptance inspection, he found boiler with excessive oil on the tubes and tube sheet after boiler was delivered and installed. He could not find any reference to boil-out to remove this extraneous material.</p>		
<p>January 2025 Meeting Action: Passed</p> <p>A motion was made and seconded to accept the attached proposal. After discussion a vote was taken and the motion carried unanimously. This will be sent to MC for letter ballot.</p>		
Item Number: 22-28	NBIC Location: Part 1	No Attachment
<p>General Description: Pool Heater supplement</p> <p>Subgroup: SG Installation</p> <p>Task Group: J. Kleiss (PM), R. Spiker, T. Creacy, and M. Byrum</p> <p>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.</p>		
<p>January 2025 Meeting Action: Progress Report</p> <p>This item will be letter balloted to SG Installation with review and comment to SC Installation.</p>		
Item Number: 23-52	NBIC Location: Part 1, 2.5.3.2 and 3.5.3	Attachment Page 3
<p>General Description: Harmonize electrical requirements for most types of boilers/water heaters</p> <p>Subgroup: SG Installation</p> <p>Task Group: T. Clark (PM), S. Konopacki, J. Kleiss, R. Spiker, and Jon Choitz</p> <p>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.</p>		
<p>January 2025 Meeting Action: Passed</p> <p>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.</p>		

Item Number: 24-05	NBIC Location: Part 1, New Supplement	No Attachment
<p>General Description: Add Heat Pump Water Heater & Heat Pump Hydronic Heater Supplement</p> <p>Subgroup: SG Installation</p> <p>Task Group: J. Kleiss (PM), Bryan Ahee</p> <p>Explanation of Need: Heat pump water heating and hydronic heating are growing in prevalence. Guidance for installation and inspection of these products is needed.</p>		
<p>January 2025 Meeting Action: Progress Report</p> <p>This item will be balloted for review and comment to all four subgroups.</p>		

Item Number: 24-26	NBIC Location: Part 1, 3.7.8	No Attachment
<p>General Description: NBIC Requirements for ASME Modular Water Heaters</p> <p>Subgroup: SG Installation</p> <p>Task Group: R. Spiker (PM), M. Byrum, J. Kleiss</p> <p>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.</p>		
<p>January 2025 Meeting Action: Progress Report</p> <p>Work continues on this item.</p>		

Item Number: 24-56	NBIC Location: Part 1, S3.6.1	No Attachment
<p>General Description: LCDSV Systems: Add Table and Figure</p> <p>Subgroup: SG Installation</p> <p>Task Group: M. Byrum (PM), R. Black</p> <p>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.</p>		
<p>July 2025 Meeting Action: Proposal</p> <p>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.</p>		

13. New Items:

Item Number: 24-89	NBIC Location: Part 1, S3.6 d)	No Attachment
<p>General Description: Require means to prevent safety valve discharge piping blockage for LCDSV (Part 1)</p> <p>Subgroup: SG Installation</p> <p>Task Group: None assigned.</p> <p>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.</p>		
<p>January 2025 Meeting Action: Closed with no action</p> <p>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.</p>		

Item Number: 24-97	NBIC Location: Part 1, 2.7.5	No Attachment
<p>General Description: Anchoring of Threaded Blowdown Piping</p> <p>Subgroup: SG Installation</p> <p>Task Group: T. Clark, J. Choitz (PM), R. Spiker, R. Adams</p> <p>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.</p>		
<p>January 2025 Meeting Action: Progress Report</p> <p>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.</p>		

Item Number: 24-102	NBIC Location: Part 1, 1.6.9	No Attachment
<p>General Description: Strengthen requirements for Carbon monoxide monitoring</p> <p>Subgroup: SG Installation</p> <p>Task Group: Jim Byrum (PM) and all members SG Installation, Steve Schneeberger, Bryan Ahee</p> <p>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.</p>		

<p>January 2025 Meeting Action: Progress report</p> <p>A task group was formed to work on this item.</p>

Item Number: 25-03	NBIC Location: Part 1, 1.6.1 & 3.7.7.1	No Attachment
<p>General Description: Create uniformity between sections on requirements for drains and blowoff pipes</p> <p>Subgroup: SG Installation</p> <p>Task Group: T. Clark (PM), J. Choitz, R. Spiker, R. Adams</p> <p>Explanation of Need: Create uniformity between sections on requirements for drains and blowoff pipes</p>		
<p>January 2025 Meeting Action: Progress Report</p> <p>A task group was formed to work on this item</p>		

13. Future Meetings

- July 7-10, 2025 – Cincinnati, OH
- January 12-15, 2026 – New Orleans, LA

14. Adjournment

Meeting adjourned at 11:11 AM

Respectfully submitted,

Thomas P. Beirne
 Subcommittee Installation Secretary

Subcommittee Installation Attendance: January 15, 2024

MEMBERS:	Interest Category	In Person	Remote	Not In Attendance
Don Patten	NB Certificate Holders	X		
Stan Konopacki	Users	X		
Robert Black	Manufacturers	X		
Joe Brockman	Authorized Inspection Agencies	X		
Jim Byrum	Authorized Inspection Agencies	X		
Tom Clark	Jurisdictional Authorities	X		
Todd Creacy	Authorized Inspection Agencies	X		
J. Matt Downs	Manufacturers	X		
H. Michael Richards	General Interest	X		
Robert Smith	General Interest	X		
Ron Spiker	Jurisdictional Authorities	X		
Melissa Wadkinson	Manufacturers	X		
Thomas P. Beirne	Secretary	X		

VISITORS:	Company / Interest	In Person	Remote
Rodger Adams	Zurich	X	
Howard Berny	State of Minnesota	X	
John Burpee	State of Maine	X	
Jon Choitz	HSB	X	
Jeff Kleiss	Lochinvar		X
Luis Ponce	NBBI Staff	X	
Gary Scribner	NBBI Staff	X	
Bryan Ahee	Bradford White Corporation	X	
Rob Stimson	State of Kansas	X	
Joel Amato	NBBI Staff	X	
Jim Bell	Fink Engineering	X	
Robert Black	American Boiler Manufacturers Association	X	
Clayton Collins	CNA Insurance	X	
Steve Schneeberger	CNA Insurance	X	
John Mirajali		X	

NBIC Item # 20-86

NBIC Part 1

Supplement SXX Boil Out and Steam Blow Guidelines

SX Scope

This supplement provides guidelines for boiling out new power boilers, steam heating boilers or unfired steam pressure vessels. It is recommended that newly installed units be boiled out prior to operation. New internal surfaces are subject to oil, grease, and/or other protective coatings, mill scale, rust, welding flux, and/or other foreign material normally associated with the manufacturing process, shipping preparation and installation. All contaminants should be removed as they could lower the heat transfer rate, cause localized overheating, erratic water level control and surging.

- a) Proper boil out procedures and/or recommended chemicals should be obtained from the boiler/pressure vessel manufacturer or a boiler chemical treatment specialist. Safety relief valves must be removed before adding the boil out solution so that neither it nor the grease which it may carry will contaminate the valves. All valves in the piping leading to or from the system must be closed to prevent cleaning solution from getting into the system.
- b) The boiled water should be cooled to 120° F (49° C) and discharged safely in accordance with local, state, and federal guidelines. All procedures should be reported, if required, to the jurisdiction.
- c) New condensate return piping should also be considered due to the possibility of contaminants in the piping. The condensate should be cooled to 120° F (49° C) and drained to ensure the new system piping has been flushed free of debris and is fully clean.
- d) Prior to the commissioning of a steam supply and distribution piping systems, steam blowing may be recommended to be used along with chemical cleaning to remove foreign material remaining after plant erection is completed. To minimize the potential of injury to personnel and damage to equipment, the design and location of the associated piping should be addressed by the designer or installer of the boiler and associated piping.
- e) Existing boilers that have had any tube replacement, re-rolling or other extensive repairs to the pressure parts should also be boiled out. The lubricant used for rolling tubes, plus the protective coating on the new tubes, should be removed by boiling out before the repaired boiler can be put back on the line.

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 m²) 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 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 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 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.~~

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 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.~~

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 m²) 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 switch(es) may be provided.

~~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.

~~2)c)~~ For power burners with detached auxiliaries, only the fuel input supply to the firebox need to be shut off.

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.~~