AGENDA

Meeting of January 14th, 2020
San Diego, CA
1. Call to Order
   8:00 AM

2. Introduction of Members and Visitors

3. Check for a Quorum

4. Awards/Special Recognition

5. Announcements

   The National Board will be hosting a reception for all committee members and visitors on Wednesday evening at 5:30pm at The Smoking Gun. Additional information about the reception can be found on the Hotel Information webpage for the meeting: https://www.nationalboard.org/Index.aspx?pageID=456&ID=478

6. Adoption of the Agenda

7. Approval of the Minutes of July 16th, 2019 Meeting

   The minutes are available for review on the National Board website, www.nationalboard.org.

8. Review of Rosters (Attachment Page 1)

   a. Membership Nominations

      - Mr. Matt Downs – Manufacturer (Attachment Page 2)
      - Mr. Patrick Jennings – AIA (Attachment Page 4)

   b. Membership Reappointments

      The following subcommittee member terms are set to expire on 1/30/2020:
      - Mr. Stanley Konopacki (Users)
      - Mr. Rex Smith (AIA)
      - Mr. Todd Creacy (AIA)

   c. Officer Appointments

9. Open PRD Items Related to Installation

   - NB15-0108B – Address pressure relief devices in new supplement on high temperature hot water boilers – A. Renaldo (PM)
   - NB15-0305 – Create Guidelines for Installation of Overpressure Protection by System Design – D. Marek (PM)
   - NB15-0308 – Create Guidelines for Installation of Pressure Relief Devices for Organic Fluid Vaporizers – T. Patel (PM)
   - NB15-0315 – Review isolation valve requirements in Part 1, 4.5.6 and 5.3.6 – D. DeMichael (PM)
   - NB16-0805 – Temperature ratings for discharge piping and fittings – A. Renaldo (PM)
   - 17-115 – Complete rewrite of Part 4, Section 2 combining common requirements into a general requirements section for all pressure relief devices – A. Renaldo (PM)
   - 17-119 – Part 4, 2.2.5 states that pressure setting may exceed 10% range. Clarify by how much – T. Patel (PM)
   - 17-128 – Fix contradiction between Part 4, 2.4.1.6 a) and 2.4.4.3 regarding Y bases. – B. Nutter (PM)
   - 18-73 – Update installation requirements for Thermal Fluid Heaters (Part 1, S5.7.6) – T. Patel (PM)
10. Action Items

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<tr>
<th>Item Number: NB16-0102</th>
<th>NBIC Location: Part 1</th>
<th>Attachment Page 7</th>
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<tr>
<td><strong>General Description:</strong></td>
<td>Address post installation pressure testing</td>
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<td><strong>Subgroup:</strong></td>
<td>Installation</td>
<td></td>
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<tr>
<td><strong>Task Group:</strong></td>
<td>S. Konopacki (PM), E. Wiggins, P. Cole, R. Smith, M. Wadkinson, D. Patten</td>
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<tr>
<td><strong>July Meeting Action:</strong></td>
<td>Proposal – S. Konopacki (PM) presented a summary and held discussion amongst the SG. A break out session then took place and a proposal was generated and presented. There was a motion to approve the proposal to the SC. The motion was unanimously approved.</td>
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<td><strong>Update:</strong></td>
<td>The proposal was balloted to Main Committee but failed to receive enough approval votes. Ballot comments can be seen on Attachment Page XXX.</td>
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<td><strong>General Description:</strong></td>
<td>Result of NB16-0101, add verbiage regarding commissioning fired boilers &amp; fired pressure vessels with a calibrated combustion analyzer.</td>
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<td><strong>Subgroup:</strong></td>
<td>SG Installation</td>
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<td><strong>Task Group:</strong></td>
<td>E. Wiggins (PM), D. Patten, P. Schuelke, and M. Wadkinson</td>
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<td><strong>July Meeting Action:</strong></td>
<td>Progress Report – G. Halley shared background information and discussions took place amongst the SG. A break out session then took place and a proposal was generated and presented. After further discussions it was decided that further clarification and documenting is needed.</td>
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<tr>
<th>Item Number: 18-57</th>
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<tr>
<td><strong>General Description:</strong></td>
<td>address the use &amp; definition of the word inspector</td>
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<td><strong>Subgroup:</strong></td>
<td>SG Installation</td>
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<td><strong>Task Group:</strong></td>
<td>Brian Moore (PM), R. Smith, T. Griffin, P. Jennings and T. Creacy</td>
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<tr>
<td><strong>July Meeting Action:</strong></td>
<td>Progress Report – R. Smith presented a summary and held discussions amongst the SG. As the TG continues to work on this item it is the intention of having a proposal to present at the meeting in January 2020.</td>
<td></td>
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<tr>
<td><strong>Note:</strong></td>
<td>A new project manager should be designated for this item since Mr. Brian Moore is no longer involved with the committee.</td>
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<th>Item Number: 19-45</th>
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<tr>
<td><strong>General Description:</strong></td>
<td>Revisions to Yankee Dryer Supplement Wording in Part 1</td>
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<td><strong>Subgroup:</strong></td>
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<tr>
<td><strong>Task Group:</strong></td>
<td>R. Spiker (PM), J. Jessick, and D. Patten</td>
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<tr>
<td><strong>Explanation of Need:</strong></td>
<td>Various technical and editorial revisions for S1.1, S1.2, and S1.4.</td>
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<tr>
<td><strong>July Meeting Action:</strong></td>
<td>Progress Report -This item also affects Part 2 under item 19-46. Part 2 has separated these out into 3 separate items. V. Newton is the PM and will liaison between Part 1 and Part 2 so as to keep all informed. The scope is planned to be the first to be worked on.</td>
<td></td>
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</table>
General Description: Ensure shipping plugs for PRDs are removed during the installation process

Subgroup: Installation
Task Group: R. Smith (PM) and S. Konopacki

Explanation of Need: From the January 2019 main committee meeting, the discussion of PRD Item NB17-0401 led to the decision to open an item to address requirements to remove any shipping caps or plugs from pressure relief devices during the installation process.

July Meeting Action: Proposal - A TG was assigned to be R. Smith (PM) and S. Konopacki. A break out session took place in the SG and discussions were held amongst the SG and SC. A proposal was generated, presented and discussed. There was a motion to approve the proposal to the MC for voice vote. The motion was unanimously approved.

Update: The proposal was approved unanimously by SC Installation at the July meeting. However, Main Committee decided to send the proposal back to the subgroup to include language on “wired shut” lifting levers as they are often found still attached after installation.

Note: M. Wadkinson continues to work on the project regarding a review of Installation Requirements of CSD-1 to be put in Part I. A break out session was held and individuals were assigned to look over CSD-1 and Part I between meetings. Task Group: D. Patten, S. Konopacki, G. Tompkins, M. Wadkinson, R. Austin, K. Watson and P. Schulke

11. New Items:

<table>
<thead>
<tr>
<th>Item Number: 19-77</th>
<th>NBIC Location: Part 1, 1.4.5.1.1</th>
<th>Attachment Page 12</th>
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<tr>
<td>General Description:</td>
<td>NBIC Part 1, 1.4.5.1.1 Guide for installation report, items 6, 10, and 20</td>
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<td>Subgroup:</td>
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<td>Task Group:</td>
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<td>Explanation of Need:</td>
<td>Cast aluminum boilers have been incorporated in ASME Section IV for a number of years now and it's time they be recognized in the NBIC. The installation report and guide were developed prior to cast aluminum boilers becoming an official part of ASME Section IV. It's suggested the guide item numbers and associated areas of the installation report be revised to incorporate cast aluminum boilers.</td>
<td></td>
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</table>

12. Future Meetings

- July 13th-16th, 2020 – Louisville, KY
- January 11th-14th, 2021 – TBD

13. Adjournment

Respectfully submitted,

Jonathan Ellis
Jonathan Ellis
NBIC Secretary
Contents

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<tr>
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<th>First Name</th>
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</table>
J. Matt Downs  
11643 West 125 North  
Michigan City, IN 46360  
(219)879-3947

EDUCATION:  
Purdue University, North Central, Westville, Indiana  
Major: Bachelor’s Degree in Mechanical Engineering  
Degree: Received Fall 2007  
Associate in Mechanical Engineering received fall 2003  
Associate in Architectural Engineering received Fall 1996

RELEVANT SCHOOLING:

Building Construction  
Mechanical and Electrical Systems  
Estimating and Bidding  
Surveying (total stations)  
Technical Drafting and Computer Aided Design-CAD  
Scheduling

Math  
Algebra and Trigonometry  
Physics I & II and Dynamics  
Strength of Materials  
Statistics and Structural Calculations  
Calculus I & II, Static’s  
Thermal Dynamics

Millwright  
Millwright Apprentice  
Local Union #1043  
Two years on the job & classroom training

Plans & Specifications  
Blueprint and specification reading

Software Knowledge  

ITT fluid Handling- Special Design & Applications  
The CI Group- Basic Problem Solving & Root Cause Analysis  
Quality Six Sigma Green Belt Certified
EXPERIENCE:

02/06- Present  Weil-McLain, Manufacture of Cast Iron Boilers:
New Product Development- Product Engineer-Commercial Project
Engineer-Coordinate development and introduction of commercial
products.
Marketing Commercial Product Manager- Manage existing
product lines along with new product introductions
American Society of Mechanical Engineers- representative

ASME-Member section IV Main Committee, sub group-
Materials, Cast, Care and Maintenance.
ASME – Section II sub-group Non ferrous alloys

7/04 – 02/06  Geberit Manufacturing: Plumbing Products
Manufacturing Engineer, Facilities Manager, Safety Manager
Company representative for CSA & UL inspections
Develop plant layout, capitol budgets, and assembly fixtures
Project Manager for $3.2 Mil. addition, Relocated three
company’s/ operations to new facility

9/95- 7/04  Weil-McLain, Manufacture of Cast Iron Boilers:
New Product Development- Product Engineer/Project Manager
Applications Engineer, Commercial Services Engineer, Technical
Service and Radiant Engineer, Quality Assurance Inspector in the
Machine shop, Returned goods and receiving inspection.

Company Representative- ASTM (American Society for Testing of
Materials), IAPMO- (International Association of Plumbing and
Mechanical Officials_ and NSF (National Sanitation Foundation
Labs)

8/93 – 11/07  Student at Purdue University North Central
Degree:    Architecture Technology, fall of 1996
           Mechanical Engineering Degree, fall 2003
           Mechanical Engineering Bachelor’s Degree, Fall
           2007

6/91 – 6/93  Local Union #1043 – Apprentice
Millwright, precision alignment/ leveling of motors, gear box
assemblies and conveying systems.

Professional references available upon request.
Patrick Jennings - Director of Legislative Affairs
Hartford Steam Boiler Inspection and Insurance Company

One State Street
PO Box 5024
Hartford, CT 06102
860 - 722 - 5582

Patrick_Jennings@hsb.com

**SUMMARY**


The past eight years have been with Hartford Steam Boiler (HSB) with most of that time as a subject matter expert (boiler) supporting the Insurance and Jurisdictional aspects of HSB’s equipment breakdown business.

**EXPERIENCE**

**Hartford Steam Boiler**

*Director of Legislative Affairs December 2018 to Present.*

Working for the Inspection Services group, I interface with subjects related to jurisdictional issues primarily the interface between the statutes, regulations and inspection services work instructions. This includes resolution of jurisdictional issues with the chiefs as needed.

*Principal Engineer July 2011 to December 2018*

Technical Subject Matter Expert for boilers in support of insurance and jurisdictional inspections business units. Provided technical support to underwriting by developing standards and performing desktop reviews; claims by training, inspection services by training and direct consultation. Support for claims and underwriting included direct consultation for atypical areas or events relating to boilers or energy.

**Alstom Power (ABB, Combustion Engineering)**

*Manager of Business Development April 2008 to April 2009*

Led a group of seven proposal managers and one proposal publisher with responsibility for obtaining financial objectives of order intake and as-sold gross and net margins. Responsible for the commercial and technical aspects of all proposals issued from the group. I worked closely with the sales and engineering organizations to perform market analysis, identify opportunities, develop appropriate scope proposals, conduct technical and commercial risk reviews and negotiate contracts.

*Consulting Engineer, Performance Design*, May 2006 to April 2008

As a Performance Design Engineer (PDE), the job entailed working on pressure part proposals and contract execution. This involved engineering analysis and material selections for both the proposal and contract
phase. All jobs proposed and executed finished under budget, on schedule and met all performance targets. Lead author of the boiler portion of the retrofits chapter in the Alstom Power textbook, *Clean Combustion Technologies*.


Technically responsible for all Boiler Retrofit (Windsor) proposals issued. The requirement was to ensure that all proposals have clearly identified scope of supply and performance conditions that support performance guarantees. Identify risk areas and potential mitigation strategies.

**Business Development Manager**, March 1999 to Sept. 2004

Responsible for capturing NOx reduction projects and related firing systems products from utility and industrial companies. As a Business Development Manager I obtained $65 Million in direct contracts with higher than average gross margins for the business unit. These contracts resulted in significant pull through work for construction, technical services and contract extras.

**Principal Firing Systems Engineer**, June 1994 to March 1999

Primarily responsible for the technical direction of proposals for Low NOx firing system projects that meet customer expectations and achieve guaranteed performance. Supported proposals for standard product lines and three first of a kind firing systems with responsibility for the safe design and project execution.

**R&D Firing Systems Engineer**, March 1990 to June 1994

Primarily responsible for proposing and executing firing system developmental projects in direct support of business unit requirements and government contracts with values up to four million dollars. Received a patent for technology developed.

**Test Engineer**, July 1986 to March 1990

As a field services test engineer for technical services working on utility boilers job responsibilities included; developing test plans, identifying resource requirements and executing test programs. I also supported NDE testing on the first Combustion Engineering CFB boiler.

**EDUCATION**

North Carolina State University, Raleigh NC - B.S. Mechanical Engineering – May 1986

**PATENTS**

US Patent 5,315,939 – One of the Top 100 Inventions of 1994; Popular Science Magazine

**TECHNICAL PAPERS / WRITING (Selected)**

Jennings, P; Ashman, J; Dejung, S; Gebert, T; Kolbe, C; Park, H; Popovic, C; Von Roth, D; Shepherd, M (2016). IMIA Working Group Paper 95(16) Supercritical Boilers, 49th Annual IMIA Conference, Doha, Qatar.


Jennings, P. (2002). Low NOx Firing Systems and PRB Fuel; Achieving as low as 0.12 LB NOx/MBtu. *Institute of Clean Air Companies, Forum '02*. Houston, TX.


8.2 CODE REVISIONS OR ADDITIONS

Request for Code revisions or additions shall provide the following:

Existing Text:

**2.10.2 PRESSURE TEST**

Prior to initial operation, the completed boiler, including pressure piping, water columns, superheaters, economizers, stop valves, etc., shall be pressure tested in accordance with the original code of construction. Any pressure piping and fittings such as water columns, blowoff valves, feedwater regulators, superheaters, economizers, stop valves, etc., which are shipped connected to the boiler as a unit, shall be hydrostatically tested with the boiler and witnessed by an Inspector.

**2.10.4 SYSTEM TESTING**

Prior to final acceptance, an operational test shall be performed on the complete installation. The test data shall be recorded and the data made available to the jurisdictional authorities as evidence that the installation complies with the provisions of the governing code(s) of construction. This operational test may be used as the final acceptance of the unit.

**3.10.1 PRESSURE TEST**

Prior to initial operation, the completed boiler, individual module, or assembled module, shall be subjected to a pressure test in accordance with the requirements of the original code of construction.

**4.6 TESTING AND ACCEPTANCE**

a) The installer shall exercise care during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the vessel. The installer shall inspect the interior of the vessel and its appurtenances where possible prior to making the final closures for the presence of foreign debris.

b) The completed pressure vessel shall be pressure tested in the shop or in the field in accordance with the original code of construction. When required by the Jurisdiction, owner or user, the Inspector shall witness the pressure test of the completed installation, including piping to the pressure gage, pressure relief device, and, if present, level control devices.

**4.7.6 TESTING AND ACCEPTANCE**

Testing and acceptance shall be in accordance with NBIC Part 1, 4.6
b) Statement of Need

NB10-1201 Covered reformatting multiple items. Pressure Testing was inconsistent between the three sections and really needs to be addressed

c) Background Information

Consolidation of Testing and Final Acceptance to Section 1 General.

Proposed Wording:

1.6.10 TESTING AND FINAL ACCEPTANCE

Boilers, heaters, or pressure vessels may not be placed into service until its installation has been inspected and accepted by the appropriate jurisdictional authorities.

a) The completed boiler/ pressure vessel shall be pressure tested in the shop and/or in the field in accordance with the original code of construction and documented on the appropriate Manufacturer’s Data Report.

b) The installer shall exercise care during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the vessel. Prior to making the final closure the installer shall inspect the interior of the vessel and its appurtenances for the presence of foreign debris.

c) Subject to the jurisdictional requirements, a leak test may be performed on any components whose pressure test is not documented under the items’ Manufacturer’s Data Report. This leak test should not exceed 90% of the lowest pressure relief device setpoint. The test data shall be recorded, and the data made available as required.

d) Prior to final acceptance, an operational test shall be performed on the completed installation. The test shall include operating controls, limit controls and safety devices. The test data shall be recorded, and the data made available to the Jurisdictional Authorities as evidence that the installation complies with provisions of the governing code(s) of construction.

2.10.2 PRESSURE TEST

See NBIC Part 1, Section 1.6.10, TESTING AND FINAL ACCEPTANCE

Prior to initial operation, the completed boiler, including pressure piping, water columns, superheaters, economizers, stop valves, etc., shall be pressure tested in accordance with the original code of construction. Any pressure piping and fittings such as water columns, blowoff valves, feedwater regulators, superheaters, economizers, stop valves, etc., which are shipped connected to the boiler as a unit, shall be hydrostatically tested with the boiler and witnessed by an Inspector.

2.10.4 SYSTEM TESTING

See NBIC Part 1, Section 1.6.10, TESTING AND FINAL ACCEPTANCE
Prior to final acceptance, an operational test shall be performed on the complete installation. The test data shall be recorded and the data made available to the jurisdictional authorities as evidence that the installation complies with the provisions of the governing code(s) of construction. This operational test may be used as the final acceptance of the unit.

3.10.1 PRESSURE TEST

See NBIC Part 1, Section 1.6.10, TESTING AND FINAL ACCEPTANCE

Prior to initial operation, the completed boiler, individual module, or assembled module, shall be subjected to a pressure test in accordance with the requirements of the original code of construction.

4.6 TESTING AND ACCEPTANCE

See NBIC Part 1, Section 1.6.10, TESTING AND FINAL ACCEPTANCE

a) The installer shall exercise care during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the vessel. The installer shall inspect the interior of the vessel and its appurtenances where possible prior to making the final closures for the presence of foreign debris.

b) The completed pressure vessel shall be pressure tested in the shop or in the field in accordance with the original code of construction. When required by the Jurisdiction, owner or user, the Inspector shall witness the pressure test of the completed installation, including piping to the pressure gage, pressure relief device, and, if present, level control devices.

4.7.6 TESTING AND ACCEPTANCE

See NBIC Part 1, Section 1.6.10, TESTING AND FINAL ACCEPTANCE

Testing and acceptance shall be in accordance with NBIC Part 1, 4.6
Old wording that has been submitted as a letter ballot to the MC:

a) The completed boiler/pressure vessel shall be pressure tested in the shop and/or in the field in accordance with the original code of construction.

b) The installer shall exercise care during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the vessel. Prior to making the final closure, the installer shall inspect the interior of the vessel and its appurtenances where possible prior to making the final closures for the presence of foreign debris.

c) Subject to the jurisdictional requirements, Prior to final acceptance, an operational pressure test, with the approval of the jurisdiction if required, shall be performed on any components whose pressure test is not documented under the items’ Manufacturer’s Data Report. This pressure test should not exceed 90% of the lowest pressure relief device setpoint. The test data shall be recorded and the data made available as required. This operational test may be used as the final acceptance of the unit.
NBIC Part 1  Item 19-49

2.9.1 VALVE REQUIREMENTS – GENERAL (19)

a) Only direct spring loaded, pilot operated, or power actuated pressure relief valves designed to relieve steam shall be used for steam service.

b) Pressure relief valves shall be manufactured in accordance with a national or international standard.

c) Deadweight or weighted-lever pressure relief valves shall not be used.

d) For high-temperature water boilers, safety relief valves shall have a closed bonnet, and valve bodies shall not be constructed of cast iron.

e) Pressure relief valves with an inlet connection greater than NPS 3 (DN 80) used for pressure greater than 15 psig (103 kPa), shall have a flange or a welded inlet connection. The dimensions of flanges subjected to boiler pressure shall conform to the applicable standards.

f) When a pressure relief valve is exposed to outdoor elements that may affect operation of the valve, the valve may be shielded with a cover. The cover shall be vented and arranged to permit servicing and normal operation of the valve.

g) Shipping caps or plugs shall be removed prior to installation.

3.9.1 PRESSURE RELIEF VALVE REQUIREMENTS – GENERAL

The following general requirements pertain to installing, mounting, and connecting pressure relief valves on heating boilers.

a) Shipping caps or plugs shall be removed prior to installation.
Item 19-77: Request for Revision to NBIC Part 1, 1.4.5.1.1 6), 10), and 20)

<table>
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<tr>
<th>Purpose</th>
<th>Cast aluminum boilers have been incorporated in ASME Section IV for a number of years now and it's time they be recognized in the NBIC.</th>
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<tbody>
<tr>
<td>Scope:</td>
<td>Part: Installation; Section: 1; Paragraph: 1.4.5.1.1 items 6, 10 and 20</td>
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<tr>
<td>Background:</td>
<td>The installation report and guide were developed prior to cast aluminum boilers becoming an official part of ASME Section IV. It's suggested the guide item numbers and associated areas of the installation report be revised to incorporate cast aluminum boilers.</td>
</tr>
<tr>
<td>Proposed Revision:</td>
<td>See below for the proposed revision.</td>
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</table>

1.4.5.1.1 GUIDE FOR COMPLETING NATIONAL BOARD BOILER INSTALLATION REPORT

1) INSTALLATION: Indicate the type and date of installation — new, reinstalled, or second hand.

2) INSTALLER: Enter the installer's name and physical address.

3) OWNER-USER: Enter the name and mailing address of the owner-user of the boiler.

4) OBJECT LOCATION: Enter the name of the company or business and physical address where the installation was made.

5) JURISDICTION NO.: Enter the Jurisdiction number if assigned at the time of installation.

6) NATIONAL BOARD NO.: Enter the assigned National Board number.

Note:
- Cast-iron section and cast aluminum boilers do not require National Board registration.

7) MANUFACTURER: Enter the boiler manufacturer's name.

8) MFG. SERIAL NO.: Enter the assigned boiler manufacturer's serial number.

9) YEAR BUILT: Enter the year the boiler was manufactured.

10) BOILER TYPE: Enter the type of boiler, e.g., watertube, firetube, cast iron, cast aluminum, electric, etc.

11) BOILER USE: Enter the service for which or for how the boiler will be used, e.g., heating (steam or water), potable water, etc.

12) FUEL: Enter the type of fuel, e.g., natural gas, diesel, wood, etc. If more than one fuel type, enter the types for which the boiler is equipped.
13) METHOD OF FIRING: Enter the method of firing, e.g., automatic, hand, stoker, etc.

14) Btu/KW INPUT: Enter the Btu/hr or kW input of the boiler.

15) Btu/KW OUTPUT: Enter the Btu/hr or kW output of the boiler.

16) OPERATING PSI: Enter the allowed operating pressure.

17) ASME CODE STAMP(S): Check the ASME Code stamp shown on the code nameplate or stamping of other certification mark (specify).

18) STAMPED MAWP: Enter the maximum allowable working pressure shown on the nameplate or stamping.

19) HEATING SURFACE SQ. FT.: Enter the boiler heating surface shown on the stamping or nameplate. 
**Note:**
This entry is not required for electric boilers.

20) CAST IRON/ALUMINUM: Enter the total number of sections for cast-iron/cast aluminum boilers.
**Note:**
Not all cast boilers are sectional. Mono-block cast boilers should be described as having one (1) section.