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BCD Building Codes Division
Department of Consumer and Business Services

Boiler Inspections: An Evolving Responsibility

NBBI General Meeting

05/12/2025
Rodger Adams
Tom Clark

Introduction

NBIC Part 2, Section 1, 1.1 Scope

“The safety of the public and the Inspector is the most important aspect of any inspection activity.”

Introduction

Rodger Adams
South Region Manager
Zurich Resilience Solutions

Tom Clark
Chief Boiler Inspector
Oregon Building Codes Division | DCBS

Activity

Please stand-up if you represent a member jurisdiction, AIA, manufacturer, or repair/service organization.

Activity

Please sit-down if you *CAN* retire within the next 10 years.

Activity

Please stand-up if you're actively working as a boiler operator.

Activity

Please stand-up if you have a Boiler Operator or Stationary Engineer license.

Thermal Fluid Heater Incident

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Images courtesy of Tom Clark

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How many low-water fuel cutoff devices does it take to make a boiler safe?

Incident Statistics

The National Board BULLETIN, Summer 2002

2001 INCIDENT REPORT

OBJECT EXPERIENCING INCIDENT	ACCIDENTS	INJURIES	DEATHS
POWER BOILERS			
Safety Valve	4	0	0
Low-Water Condition	161	3	0
Limit Controls	8	0	0
Improper Installation	2	0	0
Improper Repair	1	0	0
Faulty Design or Fabrication	2	0	0
Operator Error or Poor Maintenance	82	50	7
Burner Failure	29	2	0
Unknown / Under Investigation	7	1	0
SUBTOTALS	296	56	7
HEATING BOILERS: STEAM			
Safety Valve	2	0	0
Low-Water Condition	519	0	0
Limit Controls	17	0	0
Improper Installation	10	0	0
Improper Repair	11	0	0
Faulty Design or Fabrication	31	0	0
Operator Error or Poor Maintenance	406	0	0
Burner Failure	29	0	0
Unknown / Under Investigation	66	0	1
SUBTOTALS	1091	0	1
HEATING BOILERS: WATER (includes hot-water supply)			
Safety Relief Valve	6	0	0
Low-Water Condition	195	1	0
Limit Controls	19	0	0
Improper Installation	13	2	0
Improper Repair	10	3	0
Faulty Design or Fabrication	30	0	0
Operator Error or Poor Maintenance	260	1	0
Burner Failure	26	3	0
Unknown / Under Investigation	72	0	0
SUBTOTALS	631	10	0
UNFIRED PRESSURE VESSELS			
Safety Valve	6	2	0
Limit Controls	4	0	0
Improper Installation	8	2	0
Improper Repair	8	0	0
Faulty Design or Fabrication	16	0	0
Operator Error or Poor Maintenance	142	14	4
Unknown / Under Investigation	17	0	0
SUBTOTALS	201	18	4
TOTALS	**2,219**	**84**	**12**

This report was compiled from data submitted by National Board jurisdictional authorities and authorized inspection (insurance) agencies as of December 31, 2001. It also includes materials submitted from several insurance companies that insure boilers but do not provide inspection services.

Please note: deaths and injuries are industry-related. They include, but are not limited to, owners and operators of boilers and pressure vessels.

This survey notes a 75 percent response rate from National Board jurisdictional authorities and a 41 percent response rate from authorized inspection agencies. The total number of surveys mailed was 89, with a 64 percent response rate overall. ❖

Incident Statistics (1992-2002)

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Equipment Category	Deaths	Number of Accidents
Unfired Pressure Vessels	64	2,511
Power Boilers	44	4,311
Water-Heating Boilers	14	6,928
Steam-Heating Boilers	5	9,588
	127	**23,338**

Incident Statistics

The National Board BULLETIN, Summer 2002

"And we must do more to inform the general public – to insist that everyone who works on and around boilers has the essential knowledge to protect themselves as well as those around them."

State of Skilled Labor

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"According to Market Research 365, the commercial boiler market will grow from its current estimated value of ***$11.8 billion*** *to* ***$29.3 billion*** *by 2035."*

State of Skilled Labor

“Operators state the need for help, yet there is no standard for where to get training or who to go to for help.”

What *ARE* We Doing?

The National Board of Boiler and Pressure Vessel Inspectors (NBBI)

- **Inspector Guides**
  - Air Receivers, Cast-Iron Boilers, Firetube Boilers, Operating Controls, Pressure Relief Devices, Storage Water Heaters, Water-Level Controls and Devices

- **Topics of Interest**
  - Inspector Diary, Inspection of Materials, Out-of-Print ASME Editions

- **BPV Fundamentals Seminar**

- **Installer's Series**

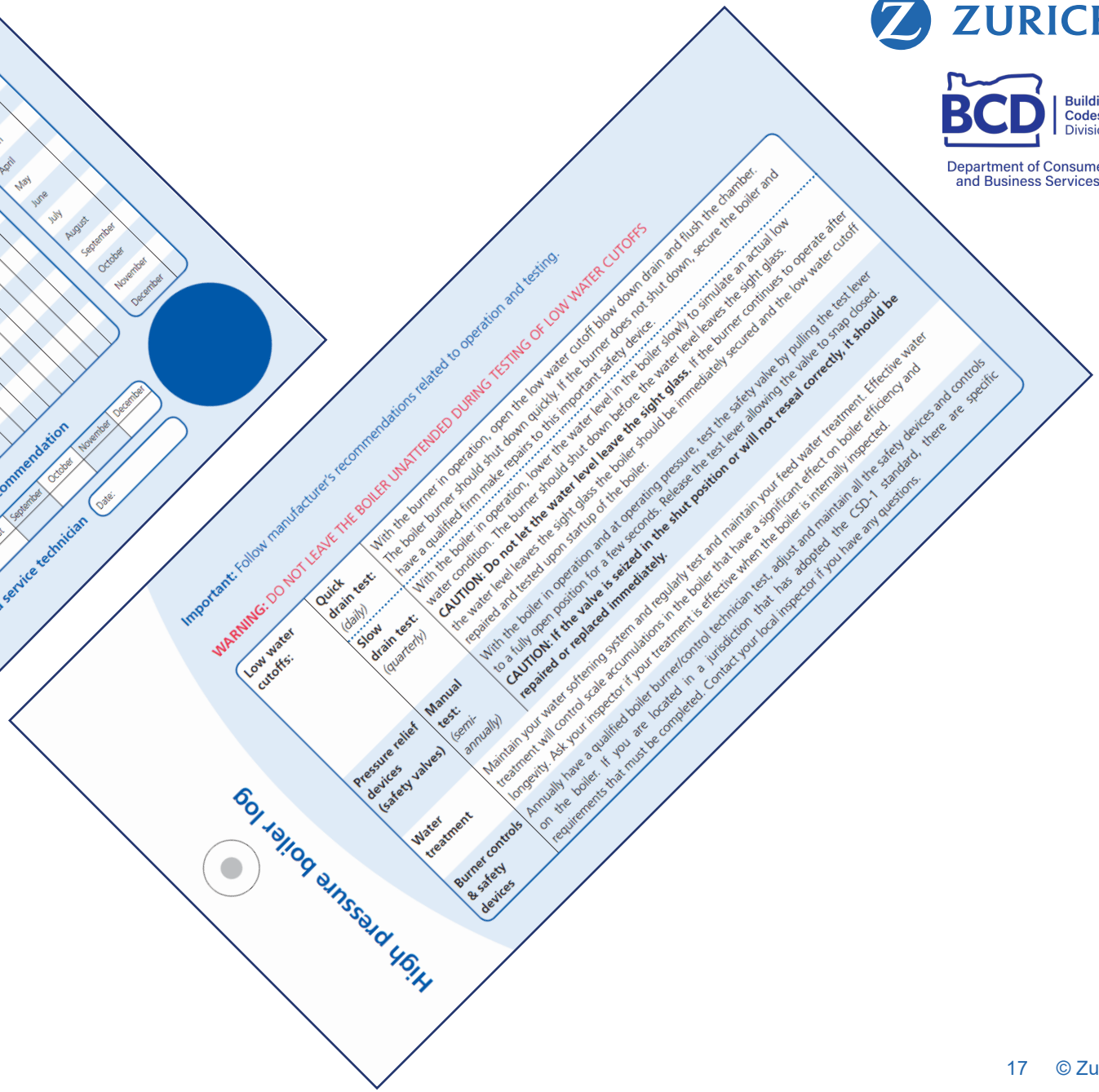
- **NB-380 Inservice Inspector Training Program**

What *ARE* We Doing?

Authorized Inspection Agencies (AIA's)

- Mentor
- Recommendations for operator training
- Low-and high-pressure boiler training
- Instruction and guidance on-site
- On-demand operator training
- Classroom training
- Boiler log tags

What *ARE* We Doing?



What *ARE* We Doing?

Jurisdictions

- **Meetings and Collaboration**
  - AIA's
  - Boiler, burner and controls manufacturers
  - Water treatment representatives
  - Boiler repair and service organization
  - Independent training companies

- **Wisconsin Boiler Inspectors Associations (WBIA)**
  - Boiler Inspectors (State of Wisconsin, City of Milwaukee, and Insurance Company)
  - Boiler and pressure vessel manufacturers
  - Boiler repair companies
  - Safety valve manufacturers and manufacturers representatives
  - Boiler operators/owners

What *CAN* We Do?

NBIC Part 2, 1.5.4 POST-INSPECTION ACTIVITIES

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"During any inspections or tests of pressure-retaining items, the actual operating and maintenance practices should be noted by the Inspector and a determination made as to their acceptability."

What *CAN* We Do?

ASME VI and VII

ASME Section VI

Recommended Rules for the Care and Operation of Heating Boilers

- ***Article 9:*** Operation and Maintenance of Steam Boilers
- ***Article 10:*** Operation and Maintenance – Hot Water Boilers and Hot Water Heating Boilers

ASME Section VII

Recommended Guidelines for the Care of Power Boilers

- ***Article 101:*** Boiler Operation
- ***Article 102:*** Boiler Auxiliaries
- ***Article 103:*** Appurtenances
- ***Article 104:*** Instrumentation, Controls, and Interlocks

What *CAN* We Do?

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Ferrari 812 GTS

Conclusion

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On-Demand Operator Training

How-To

BPV Fundamentals Seminar

NB-380 Inservice Inspector Training Program

Recommendations

Boiler Logs

Installer's Series

Guidance

Training

Inspector Guides

Topics of Interest

Meetings

Mentoring

Classroom Training

Collaboration

Site Specific Training

Conclusion

"When all is said and done, none of us want to be measured in terms of numbers. Or statistics. Or even Incident Reports.

*It is up to **YOU** to determine what will be."*

Call to Action

*Are **WE** doing enough?*

*Are **YOU** doing enough?*

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Questions

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