

Building Codes Division



Working with Oregonians
to ensure safe building
construction while
supporting a positive
business climate.

Boiler and Pressure Vessel Program

Boilers, Pressure Vessels, and B31.1 & B31.9 Piping

Overview: The following boiler and pressure vessel program changes are intended to clarify the scope of program authority, resolve specific safety concerns and best utilize the inspection resources of BCD and the insurance companies. While this overview captures present regulations and inspection practices, legislation and policy changes may impact these requirements and procedures in the future.

Shop Inspections:

BCD is no longer performing “shop inspections” as an ASME Authority Inspection Agency for new construction of boilers and pressure vessels. BCD will continue to perform audits of R Stamp and O Certificate holders. BCD will also continue to inspect repairs and alterations under the R Stamp program.

Installation Inspections:

To foster increased safety and consistency, as of July 1, 2010, Building Codes Division will begin performing *all* boiler and pressure vessel installation inspections under ORS 480.560. Insurance company special inspectors must still perform periodic inspections under ORS 480.570(2)(b) for boilers and pressure vessels insured by their companies.

Repair Inspections:

All boiler and pressure vessel repair inspections will be performed by the authorized inspection agents: BCD will continue to inspect repairs and alterations under the R Stamp program for companies that have an agreement with BCD as their Authorized Inspection Agency. Insurance companies will perform repair inspections where they are the Authorized Inspection Agent.

Piping Regulations and Inspections:

- All boiler external piping will continue to be regulated and inspected to code requirements.
- All pressure vessel piping will continue to be regulated and inspected to code requirements.
- B31.1 non-boiler external piping will continue to be regulated and inspected to code requirements.
- B31.9 non-boiler external piping will continue to be regulated by code requirements and must be constructed and installed accordingly.

Piping Definitions:

ORS 480.515(3) and 480.515(9) define *boiler external piping* and *nonboiler external piping* according to the meaning given those terms “in the 1986 Pressure Piping Code B 31.1, adopted by the American Society of Mechanical Engineers.”

(continued on page 2)



	Boiler External	Non-Boiler External
<p>B31.1 Power Piping</p> <p>Section 100.1.1: Auxiliary service piping systems for electric generation stations, industrial and institutional plants, central and district heating plants, and district heating systems, except as limited by Section 100.1.3.</p> <p>Section 100.1.2(B): Central and district heating systems for distribution of steam and hot water away from a plant, and geothermal steam and hot water piping to/from well heads.</p>	<p>Section 100.1.2(A): B31.1 covers boiler external piping for power boilers and high temperature water boilers in which: steam or vapor is generated at a pressure of over 15 psi and high temperature water is generated at pressures exceeding 160 psi and/or 250 degrees F.</p> <p>Scope of B 31.1: <u>Steam:</u> Over 15 psi <u>Water:</u> Over 160 psi and/or 250 F</p>	<p>Section 100.1.2(A): Nonboiler external piping includes all piping covered by B31.1 except portions defined as boiler external piping.</p> <p>Section 100.1.3(C): B31.1 does not apply to building heating and distribution steam piping for 15 psi or less, or hot water heating systems for 30 psi or less.</p> <p>Section 100.1.3(I): B31.1 does not apply to building services piping within the property limits or buildings of industrial and institutional facilities, which is the scope of B31.9, except that piping beyond the material, size, temperature, pressure and service limits of B31.9 [900.1.1(c)] shall conform to B31.1.</p> <p>Scope of B31.1: <u>Steam:</u> Over 15 psi <u>Water:</u> Over 160 psi and or/ 250 F.</p>
	Boiler External	Building Services Piping
<p>B31.9 Building Services Piping</p> <p>Section 900.1.1: Piping in industrial, institutional, commercial, and public buildings, and multi-unit residences, not requiring the sizes, pressures, and temperatures under B31.1, including piping systems for building services and piping systems within building or property limits.</p>	<p>Section 900.1.2(b): B31.9 covers boiler external piping for steam boilers at 15 psi max and for water heating units at 160 psi max and 250 degrees F max.</p> <p>Scope of B31.9: <u>Steam:</u> 15 psi or less <u>Water:</u> 160 psi and 250 F or less</p>	<p>OAR 918-225-0240(5): <i>Building service piping</i> means piping systems operating at 150 psi or less for steam, and 160 psi and 250 F or less for water, as described in 31.9.</p> <p>Section 900.1.2(d): Piping systems with working pressures not in excess of 150 psi for steam and condensate and 350 psi for liquids are within the scope of B31.9.</p> <p>Scope of B31.9: Building services piping not for power distribution. <u>Steam:</u> 150 psi or less <u>Liquid:</u> 350 psi or less</p>