

## **CHAPTER 45-12-10 UNFIRED PRESSURE VESSELS**

### **Section**

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### **45-12-10-01. Construction and installation standards - Exceptions.**

Unfired pressure vessels may not be installed in North Dakota unless such vessels have been constructed in accordance with the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, and bear the American society of mechanical engineers stamping as proof of such construction.

Manufacturers shall register unfired pressure vessels with the national board of boiler and pressure vessel inspectors. Unfired pressure vessels must bear the required stamping of the national board.

The requirements of this section apply to all pressure vessels within the scope of the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, with these exceptions:

1. Pressure vessels under federal control.
2. Pressure vessels that do not exceed four cubic feet [30 United States gallons] in volume and two hundred fifty pounds per square inch gauge [1723.70 kilopascals] in pressure.
3. Pressure vessels that do not exceed one and one-half cubic feet [11.22 United States gallons] in volume and six hundred pounds per square inch gauge [4136.88 kilopascals] in pressure.
4. Unfired pressure vessels installed or ordered prior to November 1, 1987. However, these unfired pressure vessels must be maintained in a safe operating condition using ANSI/NB-23 and ANSI/API-510 as guidelines. Unfired pressure vessels referenced by this section must be protected with the American society of mechanical engineers stamped pressure relief devices as defined in section VIII of the American society of mechanical engineers boiler and pressure vessel code. Existing pressure relief devices installed on unfired pressure vessels referenced by this section will be considered acceptable if the pressure relief device is set for the correct pressure, if the usage is correct, and if the device is in a satisfactory operating condition.

**History:** Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; April 1, 2010; July 1, 2012; January 1, 2014; January 1, 2016.

**General Authority:** NDCC 26.1-22.1-14

**Law Implemented:** NDCC 26.1-22.1-14

### **45-12-10-02. Application of standards - Repairs.**

These rules apply only to new construction, except as noted below:

1. Reinstalled pressure vessels must meet the rules for new construction. Exception: National board registration is required only for those vessels ordered and constructed after November 1, 1987.
2. Repairs to unfired pressure vessels and to safety and safety relief valves for those vessels:
  - a. Repairs to safety valves and safety relief valves must be such that valve function is not impaired and the repaired valve will perform to the standards for which it was originally

constructed. It is recommended that these repairs be made by a firm in possession of a valid "VR" certificate of authorization from the national board of boiler and pressure vessel inspectors.

- b. Repairs to unfired pressure vessels must be such that vessels repaired will be returned to a safe and satisfactory operating condition, provided there is not deviation from the original design. It is recommended that these repairs be made by a firm in possession of a valid "R" certificate of authorization from the national board of boiler and pressure vessel inspectors.
  - c. The national board inspection code and the American petroleum institute code (ANSI/API-510, 2006 edition) cover repair and alteration procedures. ANSI/API-510 may be used to cover the maintenance inspection, repair, alteration, and rerating procedure for pressure vessels used by the petroleum and chemical process industries. It is intended that ANSI/NB-23 cover installations other than those covered by ANSI/API-510.
3. Alterations to unfired pressure vessels:
- a. Alterations, as defined in ANSI/NB-23, must be made by a national board "R" certificate holder.
  - b. Alterations may also be made by an organization operating under the provisions of ANSI/API-510, provided the alteration is within the scope of ANSI/API-510.

**History:** Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; January 1, 2008; July 1, 2012.

**General Authority:** NDCC 26.1-22.1-14

**Law Implemented:** NDCC 26.1-22.1-14

#### **45-12-10-03. Allowance for state specials.**

If, due to a valid impediment to compliance with the American society of mechanical engineers code in its entirety, an unfired pressure vessel cannot bear the American society of mechanical engineers and national board stamping, details in the English language, and specifications and calculations, approved by a registered professional engineer experienced in pressure vessel design, must be submitted to the chief inspector by the owner or user. Approval as "state special" must be obtained from the chief inspector before construction is started.

**History:** Effective June 1, 1994.

**General Authority:** NDCC 26.1-22.1-14

**Law Implemented:** NDCC 26.1-22.1-14

#### **45-12-10-04. Change of service from anhydrous ammonia to propane.**

Unfired pressure vessels that have been previously used in anhydrous ammonia service may be converted to liquid petroleum service only with all of the following conditions being met:

1. The pressure vessel is American society of mechanical engineers code constructed and national board registered.
2. The pressure vessel has a manhole opening for access or a manhole opening is provided as an alteration.
3. The pressure vessel is in satisfactory condition internally and externally using the national board inspection code to determine acceptable condition.

4. The pressure vessel has passed a wet fluorescent magnetic particle test made by an individual possessing a valid American society for nondestructive testing level II or III certificate issued in accordance with the requirements of the American society for nondestructive testing, incorporated.

**History:** Effective January 1, 2016.

**General Authority:** NDCC 26.1-22.1-14

**Law Implemented:** NDCC 26.1-22.1-14