



NORTH DAKOTA BOILER INSPECTION PROGRAM

2015 UPDATE: COMMON BOILER INSTALLATION CODE PROBLEMS New and Replacement Boilers and Water Heaters

- 1. Boiler Isolation Valves.** Not installed or installed too far from the boiler proper on supply and return (Zone isolation valves are not the required isolation valves).
- 2. Emergency Stop Switch(s).** Missing or improperly located. Required by the Boiler Rules if the boiler exceeds 400,000 Btu input. It must be outside the enclosure unless installation just inside the boiler room door is allowed by the inspector for overriding practical concerns.
- 3. Flow switch vs low-water fuel cutoff for low water protection.** Wrong selection made. A low-water fuel cutoff is not the required low-water protection for water tube or fired coil type boilers. These boilers require a flow switch. Low-water fuel cutoffs must be installed on the boiler supply piping above the boiler and cannot be isolated from the boiler by the boiler supply isolation valve.
- 4. Horizontally installed safety and safety relief valves.** The only horizontal installation permitted is a storage water heater T & P safety relief valve and only if the temperature element is installed within the tank within six inches of the top of the tank.
- 5. Shop Installation.** Boiler located on the floor. If the boiler is installed in a shop where vehicles can be stored or used, the boiler must be at least 18" above the floor. If the boiler is in a mechanical room with an entrance door to a shop, the boiler still must be 18" above the floor.
- 6. Replacement Boilers.** Controls and piping not updated. These boilers must be installed to current code and reused controls must meet current code. Clearances must meet the listing.
- 7. Wrong safety relief valve set pressure.** If a boiler has a non-ASME expansion tank, the maximum safety relief valve set pressure allowed is 30 psig. If the boiler is shipped with a safety relief valve set higher than 30 psi, and you want to install this safety relief valve, then install an ASME stamped expansion tank. If more than one boiler is installed and interconnected, the lowest boiler MAWP determines the safety relief valve setting for *all* interconnected boilers.
- 8. Inadequate combustion air and poor combustion air designs.** Even though newer boilers mostly come with supplied air as standard, many replacement and new boiler installations have incorrect combustion air. This must be addressed with new boilers.

- 9. Incorrect or Missing High Limit Manual Reset Temperature Controller with Lockout.** Most new stainless steel and cast aluminum boilers are not allowed a temperature above 210 or 200 degrees F. Installing a 100-240 or higher high limit is not permitted. The high limit temperature controller must be set no higher than the maximum allowable temperature (MAWT) and must be a manual reset device with lockout.
- 10. Peak/Off-Peak Boilers Incorrectly Installed.** We require each boiler to be installed such that either one can operate independent of the other. We recommend parallel installation. Designs where one boiler supply is piped as the return for a second boiler will be rejected. Adding a new electric boiler to an existing fossil fuel boiler system may require isolation valves for an older boiler “grandfathered” without them.
- 11. Incorrect Clearances.** Heating boilers shall have a minimum distance of at least 36” between all sides of the heating boiler and adjacent walls, structures, or other equipment. Alternative clearances in accordance with the manufacturer’s recommendations are subject to acceptance by the Chief Inspector. If it will not fit, it cannot be installed. It will not be easier to obtain forgiveness after the fact than to get permission beforehand.
- 12. “Boiler or Water Heater Installation Report”** not filed by the installer as required by 45-12-08-01 (Part 4) of the Boiler Rules. This form is not an option and must be filed with the Chief Boiler Inspector. Verbal reports are nice but do not meet the requirements of Code. This form is available on our website as follows: www.nd.gov/ndins. Then click on **Special Funds** on the left side of the screen and then click on **Boiler Inspections** and go to the bottom of that page for the link to this form. The completed form may be mailed, scanned, emailed or faxed.

Our mailing address is:

North Dakota Insurance Department
Boiler Inspection Program
600 E. Boulevard Ave
Bismarck ND 58505-0320

Our email address is: ndspeciallyfunds@nd.gov

Our fax is: 701-328-9610

Please contact one of the boiler inspectors with any questions and prior to problem installations.

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