

**Summary of Substantive Changes  
Between the 2001 and the 2009 Editions of  
ANSI Z21.10.1/CSA 4.1 “Gas Water Heaters (Volume I, Storage Water Heaters  
with Input Ratings of 75,000 Btu per hour or Less)”**

**(The editions compared include the 2009 addenda, designated ANSI Z21.10.1a/CSA 4.1a and  
the 2002 addenda, designated ANSI Z21.10.1a/CSA 4.1a)**

**General:** Technical changes have been made to this standard; however, they are installation related and do not appear to affect currently listed products. The scope of the standard was expanded to include corrugated metal tubing employed as gas conduit. Tests were added for non-metallic vent connections and flammable vapors ignition resistance. A thermostat control test and an ignition test were removed.

Section 1.13.4: Provisions were added for corrugated metal tubing used as gas conduit.

Section 1.24: Automatic Flammable Vapor Sensor Systems and Components: Provisions for flammable vapor sensor systems were added.

Section 1.28: Non-Metallic Vent Connection Strength Test: Longitudinal force and torque tests were added for non-metallic vent connections.

Section 2.5.2: Removed main burner ignition test.

Section 2.5.10: Burner port characteristics were added.

Section 2.8.8: Added minimum requirements for some water heater automatic restart ignition systems.

Section 2.12: Thermostatic Control: Removed a test for thermostat controls.

Section 2.14.3: Added temperature test for non-metallic venting system.

Section 2.34: Flammable Vapors Ignition Resistance: A fourth test condition was added.

Section 2.36: Corrugated Metal Tubing: New sections for the testing of corrugated metal tubing employed as gas conduit were added

Section 2.36.1 Pressure Test: New

Section 2.36.2 Axial Load Test: New

Section 2.36.3 Bending Test: New

Section 2.36.4 Torsion Test: New

Section 2.36.5 Maximum Temperature: New

Section 2.36.6 Application Test: is New

Table XII, Maximum Allowable Temperatures of Typical Nonmetallic Vent Material Used in Water Heaters: Additional materials types and a column for the Pipe Nomenclature were added to the table.

Figure 17, Bending Test: Was added

Exhibit G7, Energy Consumption and Determining Efficiency: The equation for determining the minimum energy factor (EF) was changed.

Section 3.4: Added manufacturer QA requirement for corrugated metal tubing used as gas conduit.