



**Summary of Substantive Changes**  
**between**  
**the 2011 addenda (designated ANSI Z21.10.1b/CSA 4.1b) and the 2009 edition 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 comparison include the 2009 addenda, designated ANSI Z21.10.1a/CSA 4.1a)**

**Presented to the IAPMO Standards Review Committee on March 12, 2012**

**General:** The changes to the standard might require additional testing for currently listed products, specifically for water heaters having condensate disposal systems (Section 2.31) and appliances with an air intake pipe for conveying combustion air from the outdoors (Section 2.23). Other changes include:

- addition of requirements for additional information to be included in the installation instructions (Section 1.31);
- addition of requirements for additional marking to be included on the rating plate(s) of combination water/space heating appliances (Section 1.32); and
- addition of hydrostatic performance requirements for combination water/space heaters (Section 2.27).

Section 1.2, General Construction and Assembly: The following text was added:

Section 1.2.28: [Special Construction provisions applicable to water heaters for combination water/space heating are outlined under 1.31.6-e and -f, 1.32.3-b, 2.28.2, 2.28.3 and G.8.2.](#)

Section 1.31, Instructions: The following additional information is now required:

Section 1.31.1:

9. The requirement to include information on where the vent terminal can and cannot terminate:

- [A diagram as shown in Figure 17-A for direct vent appliances or Figure 17-B for other than direct vent appliances, or equivalent...](#)

Section 1.31.6:

[e. Instructions shall specify that water heaters for combination water/space heating shall not be used in space-heating-only applications.](#)

[f. Instructions that specify the installation connection points for the space heating circuit and, if applicable, specify any electrical connection points provided for the heating circuit.](#)

Section 1.32, Marking:

Section 1.32.2: The following marking requirement was added:

[q. Maximum working pressure. For water heaters for combination water/space heating that incorporate separate water and space heating circuits, the maximum working pressure\(s\) of both the water heating and space heating circuits. \(The maximum working pressure\(s\) shall not be more than 50 percent of the hydrostatic test pressure specified in 2.27, Hydrostatic Test.\)](#)



Section 1.32.3: This section was revised as follows:

b. “Suitable for [combination](#) water (potable) heating and space heating and [not suitable for space heating applications only.](#)”

Section 2.6, Piloted Ignition Systems

Section 2.6.2: the requirement to repeat the tests for a continuous pilot was removed:

~~*For a continuous pilot these tests shall be repeated using the manual shutoff valve provided to cycle the main burner gas on and off. Movement of the handle shall be in a smooth continuous motion.*~~

Section 2.7.2 and Section 2.8.4: Added the following text to clarify test conditions:

*These tests shall be conducted at normal inlet test pressure under the following voltages.*

Section 2.23, Draft Tests For Water Heaters Equipped With Power Burners:

Section 2.23.1: The conduct of this test was clarified, changed the method of test and added a step for appliances with an air intake pipe as follows:

*During conduct of this test, flue gas shall not be emitted from the condensate drain line.*

*Method of Test*

*In case of outage, the blocked condition shall be maintained for 3 minutes to allow for operation of safety devices, and then removed and ~~observation made~~ determination made that raw gas had not been re-admitted into the combustion chamber.*

*For appliances with an air intake pipe for conveying combustion air from outdoors to the appliance, the test shall be repeated by blocking the inlet air pipe. If the appliance design incorporates additional air intake openings in the appliance cabinet, these openings shall not be blocked during conduct of this test.*

Section 2.27, Hydrostatic Test: The following requirements were added for combination water/space heaters:

Section 2.27.2: *The space heating circuit integral to the construction of a combination water/space heater shall withstand a hydrostatic test pressure of two times the manufacturer’s rated maximum working pressure, but not less than 300 psi (2.07 MPa), without rupture or visible permanent deformation.*

Section 2.27.3: *For combination water heaters that have separate water and space heating circuits, the space heating circuit integral to the construction of a combination water/space heater shall withstand a hydrostatic test pressure of two times the manufacturer’s rated maximum working pressure, but not less than 30 psi (1.03 MPa), without rupture or visible permanent deformation.*

Section 2.31, Condensate Disposal System(s): Section 2.31.1 was added as follows:

*A water heater having a condensate disposal system(s) shall, under conditions of a blocked condensate drain line(s), continue to operate satisfactorily or shall shut off main burner gas during conduct of the following Method of Test...*

Figure 17A and Figure 17b: These figures were added



Section G.8 French Translations for Quoted Instructions and Markings

Section G.8.2: Changed the following markings for combination water/space heaters

1.32.3:

b. "Suitable for <u>combination</u> water (potable) heating <u>and space heating and</u> <u>not suitable for space heating</u> <u>applications only.</u> "	«Convient au <u>chauffage combiné de</u> l'eau (potable) et des locaux mais <u>non au</u> <u>chauffage des locaux uniquement.</u> »
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Part IV: Definitions: The definitions for Fan-Assisted Combustion System and Combination Water Space Heater were added.