

2009 ASME CSD-1 Changes and How They Affect You

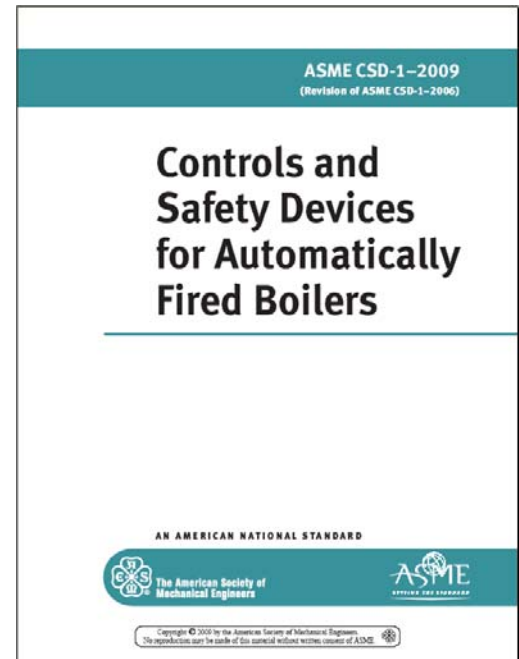
By Jason Safarz

The American Society of Mechanical Engineer's Controls and Safety Devices for Automatically Fired Boilers (ASME CSD-1) 2009 Edition has been released!

Updated from the previous 2006 edition this standard is focused on safety rules regarding boilers up to 12,500,000 Btu/hr inputs that have been adopted in over two-thirds of the United States as well as by many municipalities, insurance agencies and by other authorities having jurisdiction.

Though these revisions are subtle in many cases, their impact can make substantial changes in boiler installation and operation if not addressed up front. Some of the generic changes include the addition of a metrification section (new Appendix F), clarification of definitions and a new round of approved interpretations.

This article seeks to identify the largest impact changes and revisions that you need to be aware of by specific reference to the 2009 edition of CSD-1. These are the big ticket items beyond minor code reference updates, definition changes and editorial revisions.



2009 ASME CSD-1

Definitions: Hot Surface Ignition System

Hot surface igniters are now recognized throughout CSD-1 as an approved means to ignite the main burner. These igniters may be used on boilers less than or equal to 5,000,000 Btu/hr for both natural draft and power burners. Once you exceed 5,000,000 Btu/hr a piloted system must be used. Also of note is that gas pressure supervision is required for all burners between 400,000 and 2,500,000 Btu/hr using either direct or hot surface ignition systems. Make sure to reference the new columns for the proper timing sequences on tables CF-1 through CF-4.

CG-150 Jurisdictional Adoption of CSD-1

A section was added to provide the jurisdictions who adopt CSD-1 a little more leeway in their acceptance of CSD-1 versus other safety codes or standards that may overlap CSD-1 scope. This also allows the jurisdiction to define how they will apply CSD-1 versus the other codes or standards, and sets the responsibility for the jurisdiction to define how they will deal with any overlap that may exist.

CG-320 Installations (Removed)

The 2006 edition had a paragraph that, in essence, said the completed installation shall be in accordance with the requirements of CSD-1. This section was removed as this is already required under the scope section and was redundant. The removal of CG-320 does **not** mean you no longer need to follow all of CSD-1.

CE-110 (a) Remote Emergency Shutdown Switch

The previous edition required that the emergency shutdown switch or circuit breaker “disconnect all power to the burner controls.” This left the door open for interpretation. The 2009 edition has been revised to directly describe the function of what happens when that remote switch is depressed. The new text requires immediate shut off of the fuel or energy supply.



Example Emergency Stop

CF-150 Manually Operated Gas Shutoff Valves

The entire CF-150 section has been revised and reorganized. Previously there were subsections (a) through (d). Now the 2009 edition goes from (a) through (g) with more specific requirements for not only the valve types, handles and operation, but also the location within the fuel trains. A summary of the major changes are as follows:

Example Manual Shutoff Valve Too High



Valve approximately 15' Above Finished Floor

- The requirement for valves greater than NPS 2 (two inch) to be ball or lubricated plug type has been removed, this now applies to all valves regardless of size.
- The readily accessible, manually operated valve located upstream of all boiler controls used to be required within 9 ft of the boiler. The 2009 edition has reduced this to 6 ft.
- Though permanently attached handles were required in the 2006 edition, in most cases this is not possible due to the construction of valves. The latest edition now allows for removable handles as long as they; (1) remain on the valve when in the open position, (2) can only be attached in the proper orientation, and (3) have positions that are clearly marked on the body (you don't rely on the handle).
- There is now an allowance for removing the handle only when the valve is in the closed

position and is tagged/locked out to prevent operation per subsections (4) and (5). You can now tether the handle if detached within 3 ft from the valve.

- The need for an additional manual valve located between the safety shutoff valves (when no provisions for independent testing were provided) has been removed.

CF-162 Pressure Switches

Additional clarification on the maximum allowable pressure for a high gas pressure (HGP) switch was added. This now requires that the HGP be capable of withstanding a pressure without damage to it of either 50% above its upper set point limit or 5 psig, whichever is greater.

CF-180 Safety Shutoff Valves

CSD-1 remedies a discrepancy between what the text in CF-180 said and what the tables prescribed for quantity of safety shutoff valves (SSOVs) for lower input boilers. In addition, a new subsection (g) was added to separate out the requirements for leak tightness testing (bubble test) of SSOVs.

CF-210 Preignition Purging

Purging a boiler with fresh air is one of the most important steps in a safe boiler startup. Deriving the actual purge time for a boiler can be complicated and is typically misunderstood as to what to include in the volume calculation. The previous edition detailed that the volume to purge shall include the “fire box and passes” which left you to determine whether it was the volume in the Morrison and firetubes themselves or does it also include the economizer and the stack? The 2009 edition has clarified this to say you must include the “combustion chamber and flue passages.” This is pretty straight forward that you include not only the chamber where the combustion occurs but also all of the flue passages, including the stack, in the calculation of the volume to purge.

Please note that although the writer is a member of the ASME CSD-1 committee the article itself is not an official interpretation of this standard and does not represent the committee. These are personal interpretations of the changes and issues that you may face. There’s no substitute for getting a copy yourself and reading up on your own or for asking the committee to provide an interpretation. For a copy of ASME’s CSD-1 please go to www.asme.org and search for “CSD-1.” Currently, the cost is \$89 available directly through the web from ASME.

Also remember that these standards are only effective with participation. Future changes and interpretation requests do not all have to come from committee members. If you wish to get involved or submit a request for a formal interpretation then go to the ASME CSD-1 committee page for the procedures and forms needed:

<http://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=L0140000>

About The Author:

Jason Safarz holds a Bachelors degree in Mechanical Engineering from Cleveland State University. In his capacity as a Senior Account Engineer for over 12 years at CEC Combustion Services Group he has participated in and or managed over 2,000 safety inspections of not only boilers but also furnace and ovens throughout the world. Mr. Safarz is a current member of the ASME CSD-1 Committee and has been for the past 5 years.

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