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Final Regulation Agency Background Document

Agency name	Virginia Department of Labor and Industry/Safety and Health Codes Board
Virginia Administrative Code (VAC) citation(s)	16VAC25-50
Regulation title(s)	Boiler and Pressure Vessel Rules and Regulations
Action title	Final Regulatory Action to Amend the Boiler and Pressure Vessel Rules and Regulations
Date this document prepared	December 5, 2017

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 17 (2014) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

Brief summary

Please provide a brief summary of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed. Alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation.

The Boiler Safety Compliance Program seeks to amend the Boiler and Pressure Vessel Rules and Regulations. The final regulation addresses the following suggested amendments:

- In 16VAC25-50-10. Definitions, revisions were requested by the Register of Regulations to improve clarity, consistency throughout the regulatory text and grammatical usages:
 - “ASME Code”;
 - “Authorized inspection agency”;
 - “Certificate of competency”;
 - “Commission, National Board”;
 - “National Board Inspection Code”; and
 - “Standard boiler or pressure vessel”

2. In 16VAC25-50-10, Definitions, added new definitions for the following terms:
 - “ANSI/ASME CSD-1”;
 - “API-510”;
 - “ASME B31”;
 - “Current edition of the ASME Code”; and
 - “National Fire Protection Association No. 85”
3. In paragraphs A., C., D., and F. of 16VAC25-50-20, Minimum construction standards for boilers and pressure vessels, amendments were suggested by the Register of Regulations for improved clarity and consistency in references throughout the regulatory text.
4. In paragraph A. of 16VAC-25-50-260, Removal of safety appliances, amendments were made to improve clarity of the reference.
5. In paragraphs A. and B. of 16VAC25-50-280, Requirements for new installations, amendments were made to improve clarity of references.
6. In 16VAC25-50-300, Return loop connection, amendments were made to improve the clarity of references.
7. In 16VAC25-50-330, Operation, amendments were made to improve the clarity and consistency of references.
8. In paragraph C., F., G., H., and K. of 16VAC25-50-360, Power and high-pressure, high-temperature water boilers, amendments were made to improve the clarity and consistency of references.
9. In paragraphs C., E., F., G., H., J., K., L, and P. of 16VAC25-50-370, amendments were made to improve stylistic consistency with other references throughout this regulatory text.
10. In paragraphs A. and D. of 16VAC25-50-380, Pressure vessels, amendments were made to improve the clarity and consistency of references.
11. In paragraph A. of 16VAC25-50-430, Hydrostatic pressure tests, an amendment was made to improve the clarity and consistency of references.
12. In paragraphs D. and E. of 16VAC25-50-460, Blowoff equipment, amendments were made to improve the clarity and consistency of references.
13. Under the Forms section of 16VAC25-50, numerous amendments were made by updating existing forms to the most recent editions of the “Forms” and “Documents Incorporated by Reference” (DIBR).

Acronyms and Definitions

Please define all acronyms used in the Agency Background Document. Also, please define any technical terms that are used in the document that are not also defined in the “Definition” section of the regulations.

“API” means American Petroleum Institute
“ASME” means The American Society of Mechanical Engineers
“ANSI” means American National Standards Institute
“ANSI/ASME CSD-1”

“NBIC” means National Board Inspection Code
“NFPA” means National Fire Protection Association

Statement of final agency action

Please provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.

On November 30, 2017, the Safety and Health Codes Board adopted final amendments to 16VAC25-50, *et seq.*, Boiler and Pressure Vessel Rules and Regulations.

Legal basis

Please identify the (1) the agency (includes any type of promulgating entity) and (2) the state and/or federal legal authority for the proposed regulatory action, including the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable. Your citation should include a specific provision, if any, authorizing the promulgating entity to regulate this specific subject or program, as well as a reference to the agency’s overall regulatory authority.

The Safety and Health Codes Board is authorized by Title 40.1-51.6.A. of the *Code of Virginia* to:

“...formulate definitions, rules, regulations and standards which shall be designed for the protection of human life and property from the unsafe or dangerous construction, installation, inspection, operation, maintenance and repair of boilers and pressure vessels in this Commonwealth.”

Purpose

Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Describe the specific reasons the regulation is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.

The purpose of the final regulatory action is to improve the Boiler and Pressure Vessel Rules and Regulations by defining additional terms and revising national code references for improved clarity throughout the regulatory text, and by updating the “Forms” and “Documents Incorporated by Reference” (DIBR) to their most recent editions.

Substance

Please briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both.

The Boiler Safety Compliance Program seeks to amend the Boiler and Pressure Vessel Rules and Regulations. The final regulation addresses the following suggested amendments:

1. In 16VAC25-50-10, Definitions, amendments were made to the following definitions to improve clarity or grammar:
 - “ASME Code”;
 - “Authorized inspection agency”;
 - “Certificate of competency”;
 - “Commission, National Board”;
 - “National Board Inspection Code”; and
 - “Standard boiler or pressure vessel”

2. In 16VAC25-50-10, Definitions, added new definitions for the following terms:
 - “ANSI/ASME CSD-1”;
 - “API-510”;
 - “ASME B31”;
 - “Current edition of the ASME Code”; and
 - “National Fire Protection Association No. 85”

3. In paragraphs A., C., D., and F. of 16VAC25-50-20, Minimum construction standards for boilers and pressure vessels, amendments were made improve clarity and consistency in references.

4. In paragraph A. of 16VAC-25-50-260, Removal of safety appliances, amendments were made to improve clarity of the reference.

5. In paragraphs A. and B. of 16VAC25-50-280, Requirements for new installations, amendments were made to improve clarity of references.

6. In 16VAC25-50-300, Return loop connection, amendments were made to improve the clarity of references.

7. In 16VAC25-50-330, Operation, amendments were made to improve the clarity and consistency of references.

8. In paragraph C., F., G., H., and K. of 16VAC25-50-360, Power and high-pressure, high-temperature water boilers, amendments were made to improve the clarity and consistency of references.

9. In paragraphs C., E., F., G., H., J., K., L, and P. of 16VAC25-50-370, amendments were made to improve stylistic consistency with other references throughout this regulatory text.

10. In paragraphs A. and D. of 16VAC25-50-380, Pressure vessels, amendments were made to improve the clarity and consistency of references.

11. In paragraph A. of 16VAC25-50-430, Hydrostatic pressure tests, an amendment was made to improve the clarity and consistency of references.

12. In paragraphs D. and E. of 16VAC25-50-460, Blowoff equipment, amendments were made to improve the clarity and consistency of references.

13. Under the Forms section of 16VAC25-50, numerous amendments were made by updating existing forms to the most recent editions of the “Forms

Issues

Please identify the issues associated with the proposed regulatory action, including: 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions; 2) the primary advantages and disadvantages to the agency or the Commonwealth; and 3) other pertinent matters of interest to the regulated community, government officials, and the public. If there are no disadvantages to the public or the Commonwealth, please indicate.

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- 1) With respect to the public, the proposed regulations will provide both increased protection of human life (both employee safety and public safety) as well as property from the unsafe or dangerous construction, installation, inspection, operation, and repair of boilers and pressure vessels in the Commonwealth of Virginia. The primary advantages of defining additional terms and other revisions are to provide clarity and consistency with national references throughout the regulatory text.

Additionally, the primary advantage to the public associated with this proposed regulatory action is the use of the latest editions of publications, required for use by the boiler and pressure vessel industry. These changes are deemed necessary to update the proposed regulations to the current editions of ASME, NBIC and NFPA safety and inspection codes which are incorporated by reference into the Commonwealth's Boiler and Pressure Vessel Rules and Regulations. The most current editions of required documents, which contain the latest technological information, will provide both increased protection of human life (both employee safety and public safety) as well as protecting property from unsafe or dangerous construction, installation, inspection, operation, and repair of boilers and pressure vessels in the Commonwealth of Virginia. Companies that utilize the ASME, NBIC and NFPA safety and inspection codes for construction or repair are already required to have and work to the latest editions of these codes. The proposed regulation causes no known disadvantages to private citizens or businesses.

- 2) The primary advantage for the Commonwealth associated with the various revisions proposed in this regulatory action is the clarity and consistency with the boiler and pressure vessel industry nationwide. This clarity and consistency is shown in revisions, such as, uniform definitions, revised references to industry codes and the use of the latest editions of the industry publications. Virginia companies that utilize the ASME, NBIC and NFPA safety and inspection codes for construction or repair are already required to have and work to the latest editions of these codes.
- 3) The proposed regulation causes no known disadvantages to the Commonwealth.

Requirements more restrictive than federal

Please identify and describe any requirement of the proposal which is more restrictive than applicable federal requirements. Include a rationale for the need for the more restrictive requirements. If there are no applicable federal requirements or no requirements that exceed applicable federal requirements, include a statement to that effect.

There are no requirements of the proposed regulation which are more restrictive than applicable federal requirements.

Localities particularly affected

Please identify any locality particularly affected by the proposed regulation. Locality particularly affected means any locality which bears any identified disproportionate material impact which would not be experienced by other localities.

There are no localities that are particularly affected by the proposed regulation.

Family impact

Please assess the impact of this regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one's spouse, and one's children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.

The proposed amendments are not expected to have any impact on the institution of the family and family stability.

Changes made since the proposed stage

*Please list all changes that made to the text of the proposed regulation and the rationale for the changes; explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation. *Please put an asterisk next to any substantive changes.*

Section number	Requirement at proposed stage	What has changed	Rationale for change

No changes have been made since the proposed regulation was published in the *Virginia Register of Regulations*.

Public comment

Please summarize all comments received during the public comment period following the publication of the proposed stage, and provide the agency response. If no comment was received, please so indicate. Please distinguish between comments received on Town Hall versus those made in a public hearing or submitted directly to the agency or board.

Commenter	Comment	Agency response

No public comments were received.

All changes made in this regulatory action

Please list all changes that are being proposed and the consequences of the proposed changes. Describe new provisions and/or all changes to existing sections. Explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change and rationale
16VAC25-50-10		<p>"ASME Code" means the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers approved and adopted by the governing council of such society and approved and adopted by the board.</p>	<p><u>"ANSI/ASME CSD-1" means ASME CSD-1-2012, Controls and Safety Devices for Automatically Fired Boilers, 2012 Edition, American Society of Mechanical Engineers.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p><u>"API-510" means API-510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration, Tenth Edition, May 2014, American Petroleum Institute.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p><u>"ASME B31" means ASME B31.1-2014, Power Piping, an International Piping Code, The American Society of Mechanical Engineers.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p>"ASME Code" means the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers approved and adopted by the governing council of such society and approved and adopted by the board.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>

		<p>"Commission, National Board" means the commission issued by the National Board to a holder of a Certificate of Competency for the purpose of conducting inspections in accordance with the National Board Bylaws and this chapter. The employer must submit the inspector's application to the National Board for a commission.</p> <p>"National Board Inspection Code" means the manual for boiler and pressure vessel inspectors published by the National Board. Copies of this code may be obtained from the National Board.</p> <p>"Standard boiler or pressure vessel" means a boiler or pressure vessel which bears the</p>	<p>"Commission, National Board" means the commission issued by the National Board to a holder of a Certificate of Competency for the purpose of conducting inspections <u>in the Commonwealth</u> in accordance with the National Board Bylaws and this chapter. The employer must submit the inspector's application to the National Board for a commission.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p><u>"Current edition of the ASME Code" means the 2015 Edition of the ASME Code, which has been adopted by the Safety and Health Codes Board.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p>"National Board Inspection Code" means the manual for boiler and pressure vessel inspectors published by the National Board. Copies of this code may be obtained from the <u>National Board NB-23, the National Board Inspection Code, 2015 Edition, The National Board of Boiler Pressure Vessel Inspectors.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p><u>"National Fire Protection Association No. 85" means the NFPA[®] 85, Boiler and Combustion Systems Hazards Code, 2015 Edition, National Fire Protection Association.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p>"Standard boiler or pressure vessel" means a boiler or pressure vessel which bears the stamp of the Commonwealth of Virginia, the ASME</p>
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		stamp of the Commonwealth of Virginia, the ASME stamp and the National Board stamp when applicable.	<p><u>Code</u> stamp and the National Board stamp when applicable.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-20.A.		Boilers and pressure vessels to be installed for operation in this Commonwealth shall be designed, constructed, inspected, stamped and installed in accordance with the applicable ASME Boiler and Pressure Vessel Code including all addenda and applicable code case(s), other international construction standards which are acceptable to the chief inspector, and this chapter.	<p>Boilers and pressure vessels to be installed for operation in this Commonwealth shall be designed, constructed, inspected, stamped and installed in accordance with the applicable ASME Boiler and Pressure Vessel Code including all addenda and applicable code case(s) <u>cases</u>, other international construction standards which are acceptable to the chief inspector, and this chapter.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-20.C.		Pressure piping -- (including welded piping) -- Piping external to power boilers extending from the boiler to the first stop valve of a single boiler, and to the second stop valve in a battery of two or more boilers is subject to the requirements of ASME Code, Section I and the design, fabrication, installation and testing of the valves and piping shall be in conformity with the applicable paragraphs of ASME Code. Applicable ASME data report forms for this piping shall be furnished by the owner to the chief inspector. Construction rules for materials, design, fabrication, installation and testing both for the boiler external piping and the power piping beyond the valve or valves required	<p>Pressure piping -- (including welded piping) -- Piping external to power boilers extending from the boiler to the first stop valve of a single boiler, and to the second stop valve in a battery of two or more boilers is subject to the requirements of <u>the current edition of the ASME Power Boiler Code</u>, Section I and the design, fabrication, installation and testing of the valves and piping shall be in conformity with the applicable paragraphs of <u>the current edition of the ASME Code, Section I</u>. Applicable ASME data report forms for this piping shall be furnished by the owner to the chief inspector. Construction rules for materials, design, fabrication, installation and testing both for the boiler external piping and the power piping beyond the valve or valves required by <u>the current edition of the ASME Power Boiler Code</u>, Section I, are referenced in ANSI ASME B31.1, Power piping, and the code <u>ASME Code</u>.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>

		<p>by ASME Code, Section I are referenced in ANSI B31.1, Power piping, and the code.</p>	
<p>16VAC25-50-20.D.</p>		<p>Boilers and pressure vessels brought into the Commonwealth and not meeting code requirements shall not be operated unless the owner/user is granted a variance in accordance with § 40.1-51.19 of the Act.</p> <p>...</p> <p>2. The design calculations to determine the maximum allowable working pressure in accordance with the ASME Boiler and Pressure Vessel Code, applicable section, edition and addenda;</p> <p>...</p> <p>11. Where applicable, a matrix of differences between the actual construction of the boiler or pressure vessel for which a variance is requested and a similar boiler or pressure vessel that is code stamped; and</p> <p>12. Where applicable, a letter from an insurance company stating that it will insure the boiler or pressure vessel.</p> <p>After notification of a violation of these rules and regulations, an owner/user desiring a variance shall submit a request for variance within 30 days.</p>	<p>Boilers and pressure vessels brought into the Commonwealth and not meeting code <u>ASME Code</u> requirements shall not be operated unless the owner/user is granted a variance in accordance with § 40.1-51.19 of the Act.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p>...</p> <p>2. The design calculations to determine the maximum allowable working pressure in accordance with the ASME Boiler and Pressure Vessel Code, applicable section, edition and addenda;</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p> <p>...</p> <p>11. Where applicable, a matrix of differences between the actual construction of the boiler or pressure vessel for which a variance is requested and a similar boiler or pressure vessel that is code <u>ASME Code</u> stamped; and</p> <p>12. Where applicable, a letter from an insurance company stating that it will insure the boiler or pressure vessel.</p> <p>After notification of a violation of these rules and regulations <u>this chapter</u>, an owner/user desiring a variance shall submit a request for variance within 30 days.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>

<p>16VAC25-50-20.F.</p>		<p>F. Electric boilers, subject to the requirements of the Act and this chapter, shall bear the Underwriters' Laboratories label on the completed unit or assembly by the manufacturer. This label shall be in addition to the code symbol stamping requirements of the ASME and the National Board.</p>	<p>F. Electric boilers, subject to the requirements of the Act and this chapter, shall bear the Underwriters' Laboratories label on the completed unit or assembly by the manufacturer. This label shall be in addition to the code symbol stamping requirements of the ASME <u>Code</u> and the National Board.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-30.F.</p>		<p>F. Boiler and pressure vessel components of nuclear power plants, that are included in the Act, shall be inspected as provided by Section XI of the ASME Boiler and Pressure Vessel Code.</p>	<p>F. Boiler and pressure vessel components of nuclear power plants, that are included in the Act, shall be inspected as provided by Section XI of the ASME Boiler and Pressure Vessel Code, <u>Section XI</u>.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-260.A.</p>		<p>No person shall attempt to remove or do any work on any safety appliance prescribed by this chapter while a boiler or pressure vessel is in operation, except as provided in applicable sections of the ASME Code. Should any of these appliances be removed for repair during an outage of a boiler or pressure vessel, they must be reinstalled and in proper working order before the object is again placed in service.</p>	<p>No person shall attempt to remove or do any work on any safety appliance prescribed by this chapter while a boiler or pressure vessel is in operation, except as provided in applicable sections of the <u>current edition of the ASME Code</u>. Should any of these appliances be removed for repair during an outage of a boiler or pressure vessel, they must be reinstalled and in proper working order before the object is again placed in service.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-280.A.3.</p>		<p>No boiler or pressure vessel shall be installed in this commonwealth unless it has been constructed, inspected and stamped as provided in Part II, 16VAC25-50-20 except: ... Those existing boilers and pressure vessels which are to be</p>	<p>No boiler or pressure vessel shall be installed in this commonwealth unless it has been constructed, inspected and stamped as provided in Part II, 16VAC25-50-20 except: ... Those existing boilers and pressure vessels which <u>that</u> are to be reinstalled.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>

		reinstalled.	
16VAC25-50-280.B.		All new boiler and pressure vessel installations, including reinstalled and secondhand boilers and pressure vessels, shall be installed in accordance with the requirements of the ASME Code and this chapter.	All new boiler and pressure vessel installations, including reinstalled and secondhand boilers and pressure vessels, shall be installed in accordance with the requirements of the <u>current edition of the ASME Code</u> and this chapter. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-280.C.		A boiler or pressure vessel constructed equivalent to ASME standards, or having the standard stamping of another state that has adopted a standard of construction equivalent to the standard of this Commonwealth, may be accepted by the chief inspector. The person desiring to install the boiler or pressure vessel shall make application for the installation prior to construction and shall file the Manufacturers' Data Report for the boiler or pressure vessel with the chief inspector following construction and prior to installation.	A boiler or pressure vessel constructed equivalent to ASME <u>Code</u> standards, or having the standard stamping of another state that has adopted a standard of construction equivalent to the standard of this Commonwealth, may be accepted by the chief inspector. The person desiring to install the boiler or pressure vessel shall make application for the installation prior to construction and shall file the Manufacturers' Data Report for the boiler or pressure vessel with the chief inspector following construction and prior to installation. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-300		The return water connections to all low-pressure, steam heating boilers supplying a gravity return heating system shall be arranged to form a loop so that the water cannot be forced out of the boiler below the safe water level. This connection, known as a "return pipe loop connection," is shown in Section IV, ASME Heating Boiler Code.	The return water connections to all low-pressure, steam heating boilers supplying a gravity return heating system shall be arranged to form a loop so that the water cannot be forced out of the boiler below the safe water level. This connection, known as a "return pipe loop connection," is shown in <u>Section IV, the current edition of the ASME Heating Boiler Code, Section IV.</u> <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-330		The Recommended Rules for Care of Power Boilers, Section VII, and the Recommended Rules	The <u>current edition of the ASME Code, Section VII, Recommended Rules for Care of Power Boilers, Section VII,</u> and the <u>current edition of the ASME Code,</u>

		for Care of Heating Boilers, Section VI, of the ASME Code, shall be used as a guide for proper and safe operating practices.	<p><u>Section VI</u>, Recommended Rules for Care of Heating Boilers, Section VI, of the ASME Code, shall be used as a guide for proper and safe operating practices.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-360.C.1.		For tube ligaments, E shall be determined by the rules in Section I of the ASME Code for Power Boilers. For riveted joints, E shall be determined by the rules in the applicable edition of the ASME Code. For seamless construction, E shall be considered 100%.	<p>For tube ligaments, E shall be determined by the rules in <u>the ASME Code</u>, Section I of the ASME Code for Power Boilers. For riveted joints, E shall be determined by the rules in the applicable edition of the ASME Code. For seamless construction, E shall be considered 100%.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-360.F.1.		The use of weighted-lever safety valves, or safety valves having either the seat or disk of cast iron, shall be prohibited. Valves of this type shall be replaced by direct, spring-loaded, pop-type valves that conform to the requirements of the ASME Code, Section I.	<p>The use of weighted-lever safety valves, or safety valves having either the seat or disk of cast iron, shall be prohibited. Valves of this type shall be replaced by direct, spring-loaded, pop-type valves that conform to the requirements of the <u>current edition of the ASME Code</u>, Section I.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-360.F.4.		No valves of any description shall be placed between the safety valve and the boiler nor on the escape pipe, if used, between the safety valve and the atmosphere, except as provided by applicable sections of the ASME Code. When an escape pipe is used, it shall be at least full size of the safety-valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or escape pipe. When an elbow is placed on a safety valve escape pipe, it shall be located close	<p>No valves of any description shall be placed between the safety valve and the boiler nor on the escape pipe, if used, between the safety valve and the atmosphere, except as provided by applicable sections of the <u>current edition of the ASME Code</u>. When an escape pipe is used, it shall be at least full size of the safety-valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or escape pipe. When an elbow is placed on a safety valve escape pipe, it shall be located close to the safety-valve outlet or the escape pipe shall be anchored and supported securely. All safety valve discharges shall be located or piped as not to endanger persons working in the area.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of</p>

		to the safety-valve outlet or the escape pipe shall be anchored and supported securely. All safety valve discharges shall be located or piped as not to endanger persons working in the area.	Regulations.
16VAC25-50-360.F.9.b.		By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity (steam-generating capacity) upon the basis of the heating value of this fuel. These computations shall be made as outlined in the appendix of the ASME Code, Section I.	By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity (steam-generating capacity) upon the basis of the heating value of this fuel. These computations shall be made as outlined in the appendix of the <u>current edition of the ASME Code, Section I.</u> <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-360.F.10.		The relieving capacity of safety valves for forced-flow steam generators shall be in accordance with the requirements of Section I of the ASME Boiler Code.	The relieving capacity of safety valves for forced-flow steam generators shall be in accordance with the requirements of Section I <u>the current edition of the ASME Boiler Code, Section I.</u> <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-360.G.1.		Each boiler shall have a feed supply which will permit it to be fed at any time while under pressure.	Each boiler shall have a feed supply which <u>that</u> will permit it to be fed at any time while under pressure. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-360.G.2.		A boiler having more than 500 square feet of water-heating surface shall have at least two means of feeding, one of which shall be an approved feed pump or injector. A source of feed directly from water mains at a pressure 6.0% greater than the set pressure of the safety valve with the highest setting may be considered one of the means. As provided in	A boiler having more than 500 square feet of water-heating surface shall have at least two means of feeding, one of which shall be an approved feed pump or injector. A source of feed directly from water mains at a pressure 6.0% greater than the set pressure of the safety valve with the highest setting may be considered one of the means. As provided in the <u>current edition of the ASME Power Boiler Code, Section I,</u> boilers fired by gaseous, liquid or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shutoff of heat input if the

		the ASME Power Boiler Code, Section I, boilers fired by gaseous, liquid or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shutoff of heat input if the water feed is interrupted.	water feed is interrupted. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-360.H.1.		Each boiler shall have at least one water gauge glass installed and located so that the lowest visible part of the water glass shall be at least two inches above the lowest permissible water level, at which level there will be no danger of overheating any part of the boiler when in operation at that level; except as provided by the ASME Code.	Each boiler shall have at least one water gauge glass installed and located so that the lowest visible part of the water glass shall be at least two inches above the lowest permissible water level, at which level there will be no danger of overheating any part of the boiler when in operation at that level; except as provided by the <u>current edition of the ASME Code</u> . <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-360.K.4.		Blowoff piping shall comply with the requirements of the ASME Code, Section I, and ANSI B31.1, from the boiler to the valve or valves, and shall be run full size without use of reducers or bushings. All piping shall be steel. Galvanized steel pipe and fittings shall not be used for blowoff piping.	Blowoff piping shall comply with the requirements of the <u>current edition of the ASME Code, Section I, and ANSI B31.1</u> , from the boiler to the valve or valves, and shall be run full size without use of reducers or bushings. All piping shall be steel. Galvanized steel pipe and fittings shall not be used for blowoff piping. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-370.C.		Nonstandard welded boilers. The maximum allowable working pressure of a nonstandard steel or wrought iron heating boiler of welded construction shall not exceed 15 psig for steam. For other than steam service, the maximum allowable working pressure shall be calculated in accordance with Section	Nonstandard welded boilers. The maximum allowable working pressure of a nonstandard steel or wrought iron heating boiler of welded construction shall not exceed 15 psig for steam. For other than steam service, the maximum allowable working pressure shall be calculated in accordance with <u>Section IV</u> of the ASME Code, <u>Section IV</u> . <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.

<p>16VAC25-50-370.E.1.</p>		<p>IV of the ASME Code. Each steam boiler must have one or more officially rated (ASME stamped and National Board rated) safety valves of the spring pop type adjusted to discharge at a pressure not to exceed 15 psig. Seals shall be attached in a manner to prevent the valve from being taken apart without breaking the seal. The safety valves shall be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the boiler. A body drain connection below seat level shall be provided by the manufacturer, and this drain shall not be plugged during or after field installation. For valves exceeding two inch pipe size, the drain hole or holes shall be tapped not less than 3/8 inch pipe size. For valves less than two inches, the drain hole shall not be less than 1/4 inch in diameter.</p>	<p>Each steam boiler must have one or more officially rated (ASME Code stamped and National Board rated) safety valves of the spring pop type adjusted to discharge at a pressure not to exceed 15 psig. Seals shall be attached in a manner to prevent the valve from being taken apart without breaking the seal. The safety valves shall be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the boiler. A body drain connection below seat level shall be provided by the manufacturer, and this drain shall not be plugged during or after field installation. For valves exceeding two inch pipe size, the drain hole or holes shall be tapped not less than 3/8 inch pipe size. For valves less than two inches, the drain hole shall not be less than 1/4 inch in diameter.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.E.4. Table 2</p>		<p>NOTES: When a boiler is fired only by a gas giving a heat value of not in excess of 200 BTU per cubic foot, the minimum safety valve or safety relief valve relieving capacity may be based on the value given for handfired boilers above.</p> <p>The minimum safety valve or safety relief valve relieving capacity for electric boilers shall be 3-1/2 pounds per hour per kilowatt input.</p>	<p>NOTES: When a boiler is fired only by a gas giving a heat value of not in excess of 200 BTU per cubic foot, the minimum safety valve or safety relief valve relieving capacity may be based on the value given for handfired boilers above in <u>Table 2</u>.</p> <p>The minimum safety valve or safety relief valve relieving capacity for electric boilers shall be 3-1/2 pounds per hour per kilowatt input.</p>

		<p>For heating surface determination see ASME Code, Section IV.</p>	<p>For heating surface determination, see <u>the current edition of the ASME Code</u>, Section IV.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.E.7.</p>		<p>If there is any doubt as to the capacity of the safety valve, an accumulation test shall be run (see ASME Code, Section VI, Care of Heating Boilers).</p>	<p>If there is any doubt as to the capacity of the safety valve, an accumulation test shall be run (see <u>the current edition of the ASME Code</u>, Section VI, <u>Care of Heating Boilers</u>) <u>VI</u>).</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.F.1.</p>		<p>Each hot water boiler shall have one or more officially rated (ASME stamped and National Board rated) safety relief valves set to relieve at or below the maximum allowable working pressure of the boiler. Safety relief valves officially rated as to capacity shall have pop action when tested by steam. When more than one safety relief valve is used on hot water boilers, the additional valve or valves shall be officially rated and shall be set within a range not to exceed six psig above the maximum allowable working pressure of the boiler up to and including 60 psig and 5.0% for those having a maximum allowable working pressure exceeding 60 psig. Safety relief valves shall be spring loaded. Safety relief valves shall be so arranged that they cannot be reset at a higher pressure than the maximum permitted by this paragraph.</p>	<p>Each hot water boiler shall have one or more officially rated (ASME <u>Code</u> stamped and National Board rated) safety relief valves set to relieve at or below the maximum allowable working pressure of the boiler. Safety relief valves officially rated as to capacity shall have pop action when tested by steam. When more than one safety relief valve is used on hot water boilers, the additional valve or valves shall be officially rated and shall be set within a range not to exceed six psig above the maximum allowable working pressure of the boiler up to and including 60 psig and 5.0% for those having a maximum allowable working pressure exceeding 60 psig. Safety relief valves shall be spring loaded. Safety relief valves shall be so arranged that they cannot be reset at a higher pressure than the maximum permitted by this paragraph.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>

<p>16VAC25-50-370.F.7.</p>		<p>7. If there is any doubt as to the capacity of the safety relief valve, an accumulation test shall be run (see ASME Code, Section VI, Care of Heating Boilers).</p>	<p>7. If there is any doubt as to the capacity of the safety relief valve, an accumulation test shall be run (see <u>the current edition of the ASME Code, Section VI, Care of Heating Boilers</u>) VI).</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.H.</p>		<p>Pressure relieving devices. Boilers and fired storage water heaters except those exempted by the Act shall be equipped with pressure relieving devices in accordance with the requirements of Section IV of the ASME Boiler and Pressure Vessel Code.</p>	<p>Pressure relieving devices. Boilers and fired storage water heaters except those exempted by the Act shall be equipped with pressure relieving devices in accordance with the requirements of Section IV <u>the current edition of the</u> of the ASME Boiler and Pressure Vessel Code, <u>Section IV</u>.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.I.</p>		<p>Instruments, fittings and control requirements. Instruments, fittings and controls for each boiler installation shall comply with the requirements of the ASME Heating Boiler Code, Section IV.</p>	<p>Instruments, fittings and control requirements. Instruments, fittings and controls for each boiler installation shall comply with the requirements of the <u>current edition of the ASME Heating Boiler</u> Code, Section IV.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.J.1.</p>		<p>Each automatically fired hot water heating boiler with heat input greater than 400,000 BTU's per hour shall have an automatic low water fuel cutoff which has been designed for hot water service, located so as to stop the fuel supply automatically when the surface of the water falls to the level established in subdivision 2 of this subsection (also see ASME Heating Boiler Code, Section IV).</p>	<p>Each automatically fired hot water heating boiler with heat input greater than 400,000 BTU's BTUs per hour shall have an automatic low water fuel cutoff which that has been designed for hot water service, located so as to stop the fuel supply automatically when the surface of the water falls to the level established in subdivision 2 of this subsection (also see ASME Heating Boiler Code, Section IV).</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>16VAC25-50-370.P.1.</p>		<p>Feedwater, make-up water, or water treatment shall be introduced into a boiler through the return piping system or through an independent</p>	<p>Feedwater, make-up water, or water treatment shall be introduced into a boiler through the return piping system or through an independent feedwater connection which that does not discharge against parts of the boiler</p>

		<p>feedwater connection which does not discharge against parts of the boiler exposed to direct radiant heat from the fire.</p> <p>Feedwater, make-up, or water treatment shall not be introduced through openings or connections provided for inspection or cleaning, safety valve, safety relief valve, surface blowoff, water column, water gauge glass, pressure gauge or temperature gauge.</p>	<p>exposed to direct radiant heat from the fire. Feedwater, make-up <u>water</u>, or water treatment shall not be introduced through openings or connections provided for inspection or cleaning, safety valve, safety relief valve, surface blowoff, water column, water gauge glass, pressure gauge or temperature gauge.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-380.A.		<p>Maximum allowable working pressure for standard pressure vessels. The maximum allowable working pressure for standard pressure vessels shall be determined in accordance with the applicable provisions of the edition of the ASME or API-ASME code under which they were constructed and stamped. The maximum allowable working pressure shall not be increased to a greater pressure than shown on the manufacturers nameplate stamping and data report.</p>	<p>Maximum allowable working pressure for standard pressure vessels. The maximum allowable working pressure for standard pressure vessels shall be determined in accordance with the applicable provisions of the edition of the ASME <u>Code</u> or API-ASME code under which they were constructed and stamped. The maximum allowable working pressure shall not be increased to a greater pressure than shown on the manufacturers nameplate stamping and data report.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-380.B.2.		<p>For external pressure. The maximum allowable working pressure for cylindrical nonstandard pressure vessels subjected to external or collapsing pressure shall be determined by the rules in Section VIII, Division 1, of the ASME Code.</p>	<p>For external pressure. The maximum allowable working pressure for cylindrical nonstandard pressure vessels subjected to external or collapsing pressure shall be determined by the rules in <u>the ASME Code, Section VIII, Division 1, of the ASME Code.</u></p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
16VAC25-50-380.B.4.		<p>The maximum allowable working pressure permitted for formed heads under pressure shall be determined by</p>	<p>The maximum allowable working pressure permitted for formed heads under pressure shall be determined by using the appropriate formulas from <u>the ASME Code, Section VIII, Division 1,</u></p>

		using the appropriate formulas from Section VIII, Division 1, ASME Code and the tensile strength and factors of safety given in subdivisions 1 and 3 of this subsection.	ASME Code and the tensile strength and factors of safety given in subdivisions 1 and 3 of this subsection. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-380.D.		Pressure relief devices. Pressure relief devices for each pressure vessel installation, not exempt by the Act, shall comply with the requirements of ASME Pressure Vessel Code, Section VIII.	Pressure relief devices. Pressure relief devices for each pressure vessel installation, not exempt by the Act, shall comply with the requirements of the ASME Pressure Vessel Code , Section VIII. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-430.A.		A hydrostatic pressure test, when applied to boilers or pressure vessels, shall not exceed 1.25 times the maximum allowable working pressure, except as provided by the ASME Code. The pressure shall be under proper control so that in no case shall the required test pressure be exceeded by more than 2.0%.	A hydrostatic pressure test, when applied to boilers or pressure vessels, shall not exceed 1.25 times the maximum allowable working pressure, except as provided by the <u>current edition of the ASME Code</u> . The pressure shall be under proper control so that in no case shall the required test pressure be exceeded by more than 2.0%. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-460.D.		The blowoff piping and fittings between the boiler and the blowoff tank shall comply with Section I of the ASME code and ANSI B31.1.	The blowoff piping and fittings between the boiler and the blowoff tank shall comply with Section I of the current edition of the ASME code Code , <u>Section I</u> and ANSI ASME B31.1. <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-460.E.		All materials used in the fabrication of boiler blowoff equipment shall comply with Section II of the ASME code.	All materials used in the fabrication of boiler blowoff equipment shall comply with Section II of the current edition of the ASME code Code , <u>Section II</u> . <u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.
16VAC25-50-540		Jacketed kettles and miniature boilers are acceptable for installation if constructed and stamped in accordance	Jacketed kettles and miniature boilers are acceptable for installation if constructed and stamped in accordance with Section I, IV, or VIII, Division 1, of the <u>current edition of the</u>

		<p>with Section I, IV, or VIII, Division 1, of the ASME code and registered with the National Board.</p>	<p>ASME code Code and registered with the National Board.</p> <p><u>Rationale:</u> Changes made at the request of the Virginia Registrar of Regulations.</p>
<p>FORMS</p>		<p>R 1 Form, Report of Welded ___ Repair or ___ Alteration, CVR1 Rev 1.0.</p> <p>Form R-1, Report of Repair, National Board Inspection Code, NB-66 (rev. 2012).</p> <p>Form R-2, Report of Alteration, National Board Inspection Code (eff. 1/1/99).</p> <p>Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (eff. 1/1/99).</p> <p>Form R-4, Report Supplementary Sheet, National Board Inspection Code (eff. 1/1/99).</p>	<p>R 1 Form, Report of Welded ___ Repair or ___ Alteration, CVR1 Rev 1.0.</p> <p>Form R-1, Report of Repair, National Board Inspection Code, NB-66 (rev. 2012).</p> <p>Form R-1, Report of Repair, NB-66, Rev. 13 (rev. 6/25/2015)</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recently revised form.</p> <p>Form R-2, Report of Alteration, National Board Inspection Code (eff. 1/1/99).</p> <p>Form R-2, Report of Alteration, NB-229, Rev. 7 (rev.11/12/2015)</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recently revised form.</p> <p>Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (eff. 1/1/99).</p> <p>Form R-3, Report of Parts Fabricated by Welding, NB-230, Rev. 3 (rev. 9/24/2015)</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recently revised form.</p> <p>Form R-4, Report Supplementary Sheet, National Board Inspection Code (eff. 1/1/99).</p> <p>Form R-4, Report Supplement Sheet, NB-231, Rev. 2, (rev. 9/23/2015)</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recently revised form.</p>

		<p>BPV-5, Boiler or Pressure Vessel Data Report- First Internal Inspection (eff. 1/1/99).</p> <p>BPV-6, Boiler - Fired Pressure Vessel - Report of Inspection (eff. 1/1/99).</p>	<p>BPV-5, Boiler or Pressure Vessel Data Report- First Internal Inspection (eff. 1/1/99)-</p> <p>BPV-6, Boiler - Fired Pressure Vessel - Report of Inspection (eff. 1/1/99)-</p>
<p>DOCUMENTS INCORPORATED BY REFERENCE</p>		<p>2007 Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers.</p> <p>National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 8, 1996.</p> <p>ANSI/NB 23, 2007 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors.</p> <p>ASME B31.1, ASME Code for Power Piping, American National Standards Institute, 2007.</p>	<p>2007 Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers.</p> <p>2015 Boiler and Pressure Vessel Code, ASME Code, The American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990; www.asme.org</p> <p>Rationale: Safety and Health Codes Board adopted 2015 ASME Code.</p> <p>National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 8, 1996.</p> <p>Rationale: Eliminated at the request of the <i>Virginia Register of Regulation</i> because the Bylaws were not a reference document incorporated into this regulation.</p> <p>ANSI/NB 23, 2007 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors.</p> <p>ANSI/NB 23, 2015 National Board Inspection Code, The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229-1183; www.nationalboard.org</p> <p>Rationale: Safety and Health Codes Board adopted a more recent reference document.</p> <p>ASME B31.1, ASME Code for Power Piping, American National Standards Institute, 2007.</p> <p>ASME B31.1-2014, ASME Code for Power Piping, B-31, The American</p>

		<p>NFPA 85 Boiler and Combustion Systems Hazards, 2001 Edition, National Fire Protection Association.</p> <p>Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2009, American Society of Mechanical Engineers.</p>	<p>Society of Mechanical Engineers, International, Two Park Avenue, New York, NY 10016-5990; www.asme.org</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recent reference document.</p> <p>NFPA 85 Boiler and Combustion Systems Hazards, 2001 Edition, National Fire Protection Association.</p> <p>NFPA 85 Boiler and Combustion Systems Hazards, 2015 Edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471; www.nfpa.org</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recent reference document.</p> <p>Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2009, American Society of Mechanical Engineers.</p> <p>ANSI/ASME CSD-1-2012, Controls and Safety Devices for Automatically Fired Boilers: Part CG (General), Part CW (Steam and Waterside Control), and Part CF (Combustion Side Control) Flame Safeguard, The American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990; www.asme.org</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recent reference document.</p> <p>API 510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair and Alteration, Tenth Edition, May 2014, American Petroleum Institute, 1220 L Street, NW, Washington, D.C. 20005-4070; www.api.org</p> <p><u>Rationale:</u> Safety and Health Codes Board adopted a more recent</p>
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