

Summary of Modifications/Changes in this Update

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U.S. Department of Veterans Affairs ♦ Office of Construction & Facilities Management

DATE OF THIS VERSION (new)

March 1, 2024

TITLE OF DOCUMENT (new title if applicable)

SECTION 23 21 11 BOILER PLANT PIPING SYSTEMS

DATE OF VERSION BEING SUPERSEDED (old):

August 1, 2023

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

SECTION 23 21 11 BOILER PLANT PIPING SYSTEMS

SUMMARY OF CHANGES IN THIS VERSION:

1. Edited 2.15 B. 6.a Butterfly Valves:
 - a. Added the following:
 - i. Limited butterfly valves for flow control only.
 - ii. Prohibited use of butterfly valves for isolation or lock-out tag-out purposes.
 - iii. Prohibited use of butterfly valves in any steam system.
 - b. Removed: Type 601: Carbon steel ASTM A216/A216M wafer style butterfly valves from specification.
 - c. Edited Type 602:
 - i. Lug is no longer allowed, only flanged,
 - ii. Added: "ASME Class 150//300//600,"
 - iii. Added: "rated for WOG Service",
 - iv. Temperature range:
 1. Deleted "-320 degrees F to 842 degrees F (-196C to 450C)"
 2. Added "-29 degrees C to 204 degrees C [-20 degrees F to 400 degrees F] at 1723 kPa [250 psi] working pressure"
 - v. Removed: "rated for steam , water service at 1034 kPa",

- vi. Removed: stainless steel “nitride” disc,
 - vii. Added: “Carbon steel body, nylon” coated stainless steel disc,
 - viii. Removed: “stainless steel” seat,
 - ix. Added: “Bonded FKM” seat,
 - x. Removed:” stainless steel/”graphite laminated” seal ring”
 - xi. Added:” stainless steel/”FKM” seal ring,
- d. Removed butterfly valves from steam service,
2. Edited 2.15 D. 5: Removed butterfly valves from paragraph.
 3. Edited 2.15 E. 5: Removed butterfly valves from paragraph.
 4. Edited 2.15 G. 5: Replaced Type 601 with Type 602.
 5. Edited 3.2 D: Removed butterfly valves from paragraph.
 6. Edited 3.2 F: Removed “Bolt wafer-type butterfly valves between pipe flanges.”
 7. Edited 3.3 H. 1.: Requirements for weld radiographic examination directed to the individual welders on the job.
 - a. Added “by each welder” for 50 percent of the first 10 welds made and 10 percent of all additional welds made.
 - b. Added: All welds shall be visually inspected by the COR “or their representative”

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U.S. Department of Veterans Affairs ♦ Office of Construction & Facilities Management

DATE OF THIS VERSION (new)

December 1, 2023

TITLE OF DOCUMENT (new title if applicable)

SECTION 23 21 11 BOILER PLANT PIPING SYSTEMS

DATE OF VERSION BEING SUPERSEDED (old):

August 1, 2023

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

SECTION 23 21 11 BOILER PLANT PIPING SYSTEMS

SUMMARY OF CHANGES IN THIS VERSION:

1. Edited 2.15 B. 6. Butterfly Valves:
 - a. Limited use of butterfly valves to be used for flow control only and prohibited for isolation or lock-out tag-out purposes,
 - b. Removed: Type 601: Carbon steel ASTM A216/A216M wafer style butterfly valves from specification.
 - c. Edited Type 602:
 - i. Lug is no longer allowed, only flanged,
 - ii. Added: "ASME Class 150//300//600,"
 - iii. Added: "rated for WOG Service",
 - iv. Temperature range:
 1. Deleted "-320 degrees F to 842 degrees F (-196C to 450C)"
 2. Added "-29 degrees C to 204 degrees C [-20 degrees F to 400 degrees F] at 1723 kPa [250 psi] working pressure"
 - v. Removed: "rated for steam , water service at 1034 kPa",
 - vi. Removed: stainless steel "nitride" disc,
 - vii. Added: "Carbon steel body, nylon" coated stainless steel disc,
 - viii. Removed: "stainless steel" seat,

- ix. Added: "Bonded FKM" seat,
 - x. Removed:" stainless steel/"graphite laminated" seal ring"
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 - a. Added "by each welder" for 50 percent of the first 10 welds made and 10 percent of all additional welds made.
 - b. Added: All welds shall be visually inspected by the COR "or their representative"

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DATE OF THIS VERSION (new)

August 1, 2023

TITLE OF DOCUMENT (new title if applicable)

23 21 11 Boiler Plant Piping Systems

DATE OF VERSION BEING SUPERSEDED (old):

April 1, 2023

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

23 21 11 Boiler Plant Piping Systems

SUMMARY OF CHANGES IN THIS VERSION:

1. Edited 2.5 BOILER BLOWOFF PIPING
 - Removed from “C”: Butt-welded, no other types are allowed.
 - Added to “C”: Pipe diameter shall not be reduced to less than the connection point at the boiler.
 - Added to “D”:
 1. Pipe sizes 38 mm (1-1/2 inches) and below: Socket or Butt-welded, no other types are allowed.
 2. Pipe sizes 50 mm (two inches) and Above: Butt-welded, no other types are allowed.
 3. No pipe-to-pipe joints when the length of the run is less than a full length of pipe.

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DATE OF THIS VERSION (new)

April 1, 2023

TITLE OF DOCUMENT (new title if applicable):

Boiler Plant Piping Systems, 23 21 11

DATE OF VERSION BEING SUPERSEDED (old):

September 1, 2022

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

Boiler Plant Piping Systems, 23 21 11

SUMMARY OF CHANGES IN THIS VERSION:

1. Updated references and dates on standards.
2. Coordinated order of paragraphs with other sections in Division 23.
3. Corrected grammatical, punctuation and typographical errors both for corrections and for consistency with the other sections and divisions.
4. 1.5 A changed to reference Section 23 05 10 / 23 05 11 for consistency.
5. Added option for EC motors on unitary equipment as that is the only option available from many manufacturers.
6. Added wireless steam trap monitoring.
7. Added manufactured steam trap assemblies.
8. Changed must/will to shall.

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DATE OF THIS VERSION (new)

September 1, 2022

TITLE OF DOCUMENT (new title if applicable):

Boiler Plant Piping Systems, 232111

DATE OF VERSION BEING SUPERSEDED (old):

September 1, 2021

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

SUMMARY OF CHANGES IN THIS VERSION:

Added additional parameters to 2.1 STEAM PIPING, E. Flanges and Bolts to include:

2. Flange Face Type must match the mating flange that it will be mated with.
3. Gasket material non-asbestos gasket will either be stainless steel spiral wound strip with flexible graphite filler or compressed inorganic fiber with nitrile binder rated for saturated and superheated steam service 400 degrees C (750 degrees F) and 10,342 kPa (1500 psig). Gasket material will cover the full face of smooth face flanges.

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DATE OF THIS VERSION:

September 1, 2021

TITLE OF DOCUMENT:

Boiler Plant Piping Systems, 23 21 11

DATE OF VERSION BEING SUPERSEDED (old):

February 1, 2020

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

Boiler Plant Piping Systems, 23 21 11

SUMMARY OF CHANGES IN THIS VERSION:

1. Removed butterfly valves from the section.

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U.S. Department of Veterans Affairs ♦ Office of Construction & Facilities Management

DATE OF THIS VERSION:

February 1, 2020

TITLE OF DOCUMENT:

BOILER PLANT PIPING SYSTEMS, 23 21 11

DATE OF VERSION BEING SUPERSEDED (old):

September 1, 2017

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

BOILER PLANT PIPING SYSTEMS, 23 21 11

SUMMARY OF CHANGES IN THIS VERSION:

1. Provided a SPEC WRITER NOTE on the first page for updating and editing the Applicable Publication list. (Provide the year of latest edition to each publication listed in Article 1.3 APPLICABLE PUBLICATIONS.)
2. Revised Paragraphs 2.26.B and 2.26.C.
3. Coordinated the Sections title through out the body of the section (PART 1 - GENERAL, PART 2 – PRODUCTS and Part 3 – EXECUTION).
4. Rearranged the sections accordingly and revised the list under Article 1.2 RELATED WORK.
5. Corrected the section titles throughout this section to match the master list on the TIL.
6. Added the following SPEC WRITER NOTE in Article 1.3 APPLICABLE PUBLICATIONS. (Insert the year of approved latest edition of the publications between the brackets and delete the brackets // // if applicable to this project.)
7. Updated the date of the Applicable Publications and left the brackets in place for the Spec Writer to take an action.
8. Corrected misspelled words and made general minor revisions.

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DATE OF THIS VERSION (new)

September 1, 2017

TITLE OF DOCUMENT (new title if applicable):

23 21 11-Boiler Plant Piping Systems

DATE OF VERSION BEING SUPERSEDED (old):

August 1, 2017

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

23 21 11-Boiler Plant Piping Systems

SUMMARY OF CHANGES IN THIS VERSION:

1. Corrected improper reference to bolts from B8 (high strength stainless steel) to B7 (high strength carbon steel). ASTM A193/A193M was not changed since it is the references for B7 – high strength carbon steel bolts.

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DATE OF THIS VERSION (new)

August 1, 2017

TITLE OF DOCUMENT (new title if applicable):

23 21 11-Boiler Plant Piping Systems

DATE OF VERSION BEING SUPERSEDED (old):

February 1, 2015

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

23 21 11-Boiler Plant Piping Systems

SUMMARY OF CHANGES IN THIS VERSION:

1. Par 1.1, added A and B. A complete listing of all acronyms and abbreviations are included in Section 23 05 10, COMMON WORK RESULTS FOR BOILER PLANT AND STEAM GENERATION.
2. Par 1.2. Added
 - Section 01 00 00, GENERAL REQUIREMENTS.
 - Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS
 - Section 01 91 00, GENERAL COMMISSIONING REQUIREMENTS
 - Section 09 91 00, PAINTING.
 - Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS
 - Section 22 67 19.16, REVERSE OSMOSIS WATER EQUIPMENT.
 - Section 23 05 10, COMMON WORK RESULTS FOR BOILER PLANT AND STEAM GENERATION
 - Section 23 05 93, TESTING, ADJUSTING, AND BALANCING FOR HVAC
 - Section 23 08 11, DEMONSTRATIONS AND TESTS FOR BOILER PLANT
 - Section 23 25 00, HVAC WATER TREATMENT

3. Par 1.3 Relocated APPLICABLE PUBLICAITONS.
4. Par 1.3 Added Spec Writer note.
5. Par 1.3 Updated publications.
6. Par 1.4 Submittals. Added verbiage on the number of copies, compliance, and manufacturer's literature, materials of construction, intended service, computer program for pipe support selection, O&M manuals, Completed System Readiness checklist, training plans and instructor qualifications, Bio-Based Materials, etc.
7. General: Put metric units ahead of English units.
8. Par. 1.7.F. Deleted No. 5 and 6 oils.
9. Added Par 1.8 A-built Documentation.
10. General: Inserted metric versions of referenced standards.
11. Par 2.1: Deleted standard weight pipe.
12. Par 2.1.B added "no other types allowed".
13. Par 2.2.C.1 added "no other types allowed".
14. Par 2.1.E rearranged sentence.
15. Par 2.3.A. Deleted No. 5 and 6 oils and added NFPA 54.
16. Par 2.3.C.1 added "no other types allowed".
17. Par 2.4.B. Added "No joining of different schedule pipe in order to have welded on one end and threaded on the other. In these cases, the length of pipe shall be Schedule 80."
18. Par 2.4.C.1 added "no other types allowed".
19. Added Par 2.4.C.3, "No pipe to pipe joints when the length of the run is less than a full length of pipe".
20. Par 2.5.C added "no other types allowed".
21. Added Par 2.9 REVERSE OSMOSIS WATER PIPING.
22. Deleted: Par 2.10 COMPRESSED AIR AND BOILER DRAFT GAGE PIPING (Pneumatic Control and Instrumentation) .
23. Deleted Par 2.15.B.1.a.2.
24. Revised 2.15.B.1.b as Type 102 with cast steel.
25. Revised 2.15.B.1.c as type 103 with cast steel.
26. Par 2.15.D.2. Added "experience has been" to Spec writer note.
27. Par 2.15.J Deleted shot type chemical feeders.
28. Par 2.19.C. Added option brackets to percent deviation and turndown values.

29. Par. 2.19.E Revised to read: In the event of signal failure, //valves shall be normally closed// //failsafe device accessory in the actuator to stroke valve to predetermined position indicated//. Install per manufacturer's recommendation.
30. Deleted Par 2.19.F.
31. Added Spec Writer Notes on Sound levels.
32. Revised Spec Writer Note on Trap performance monitoring systems.
33. Added par 2.6. Pressure Driven Condensate Pump Trap.
34. Transferred Spec Writer note on seismic to 2.28.G.
35. Par 2.28.B. Deleted MSS SP-9 thru 90.
36. Par 2.28.J.8. Added "or time to the Government. The government will also require a complete stress analysis of the system as-built at no additional cost or time to the government."
37. Par 2.28.K.15. Added "//All ferrous material shall be painted in accordance with Section 09 91 00, PAINTING.//".
38. Par 2.30 Added "Teflon tape of any type is not allowed on fuel oil systems."
39. Added Par 3.1.A. "If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no additional cost or time to the Government."
40. Par 3.2.B. Added "Compression".
41. General: Corrected metric values and Replaced Resident Engineer with COR.
42. Par 3.2.B Replaced "chain wheel and chain" with "be accessed using additional permanent work platforms to be provided by contractor".
43. Par 3.3.H.3. Added "The COR and the commissioning agent shall be given a copy of all reports to be maintained as part of the project records and shall".
44. Par 3.3.I. Added "prior to resuming work on the project".
45. Par 3.4.E. Added "The COR or their representative reserves the right to reject any soldered joints based on the appearance of excessive heat, solder build up or not evenly distributed around the joint, or excessive flux build up. In which case, the contractor shall remove, clean, and replace joints at no additional time or cost to the Government."
46. Par 3.18.C. Added "Maintain access to the valve so that it can be easily maintained or reset."
47. Par 3.20 Added Spec Writer Note.
48. Par 3.20.C. Added "1. Vent lines shall have no more than a total of 180 degrees of directional changes and any one change is limited to 45 degrees to limit back pressure. The

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DATE OF THIS VERSION:

February 1, 2015

TITLE OF DOCUMENT:

Boiler Plant Piping Systems, 23 21 11

DATE OF VERSION BEING SUPERSEDED (old):

September 1, 2011

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

Boiler Plant Piping Systems, 23 21 11

SUMMARY OF CHANGES IN THIS VERSION:

1. Added Section 01 33 23, Shop Drawings, Product Data, and Samples under Paragraph 1.2 Related Work.
2. Added Section 22 11 00, Facility Water Distribution under Paragraph 1.2 Related Work.
3. Deleted Section 22 05 23, General-Duty Valves for Plumbing Piping under Paragraph 1.2 Related Work.
4. Deleted Section 22 67 21, Water Dealkalizing System under Paragraph 1.2 Related Work.
5. Deleted Section 22 08 11, Demonstrations and Tests for Boiler Plant under Paragraph 1.2 Related Work.
6. Deleted Section 23 10 00, Facility Fuel Systems under Paragraph 1.2 Related Work.
7. Renumbered the paragraphs accordingly and revised the list under Paragraph 1.2 Related Work.
8. Corrected the section titles throughout this section to match the master list on the TIL.
9. Added Paragraph 1.4.L.10 for stress analysis on the boiler plant piping systems.
10. Added Paragraph 2.5.F for bottom blow down lines.
11. Added Paragraph 2.8.C for copper piping soldered fittings.
12. Revised Paragraph 2.25.C to address flanged end piping.
13. Revised Paragraph 3.1.B to indicate that compression type fittings are not allowed.

14. Revised Paragraph 3.2.H to address that all welds shall be visually inspected.
15. Revised Paragraph 3.8 to address additional requirements for Drips and Traps.
16. Revised Paragraph 3.13 to address use of swiping radius for ells.
17. Added Paragraph 3.19.D for Relief Valve Requirements.
18. Made general minor revisions.

COR may reject any vent based on back pressure and blow by during testing. 2. Use stainless steel schedule 40 piping for horizontal sections of vent piping. Use dielectric unions or flange gaskets at each dissimilar material vent joints.”.

49. Par 3.25.F Added “Provide in accordance with Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS”.
50. Par 3.26.A Added “Flushing of the systems shall be witnessed by the COR or their representative. Provide documentation of system flow rates to flushing flow rates and for how long was the flow maintained.”.
51. Par 3.27.A Added “except where required by the specifications for specific equipment such as the boilers”.
52. Par 3.27.C Added “If insulation is installed prior to these tests the contractor shall be required to remove and reinstall insulation after the test has been completed at no additional cost or time to the Government”.
53. Added Par 3.28. Startup and Testing.
54. Par 3.29 Deleted “for all inspection, startup....” And “Refer to Section 23 08 00...”
55. Added Par 3.3 Demonstration and Training.