

Clement J. Zablocki VA Medical Center  
Milwaukee, Wisconsin 53295  
**Replace (3) Boilers Building 112**  
Bancroft Architects + Engineers

02-01-15

fabricated 3/4 or one inch globe-valved warm-up bypasses if the steam line length is 20 feet or longer.

- E. Provide union adjacent to all threaded end valves.
- F. Bolt wafer-type butterfly valves between pipe flanges.
- G. Provide valves as necessary to permit maintenance of a device or sub-system without discontinuing service to other elements of that service or system.
- H. Do not install any piping within 2 feet of water tube boiler side or top casings.

### 3.2 WELDING

- A. The contractor is entirely responsible for the quality of the welding and shall:
  - 1. Conduct tests of the welding procedures used by his organization, determine the suitability of the procedures used, determine that the welds made will meet the required tests, and also determine that the welding operators have the ability to make sound welds under standard conditions.
  - 2. Comply with ASME B31.1 and AWS B2.1.
  - 3. Perform all welding operations required for construction and installation of the piping systems.
- B. Qualification of Welders: Rules of procedure for qualification of all welders and general requirements for fusion welding shall conform with the applicable portions of ASME B31.1, and AWS B2.1, and also as outlined below.
- C. Examining Welder: Examine each welder at job site, in the presence of the COR, to determine the ability of the welder to meet the qualifications required. Test welders for piping for all positions, including welds with the axis horizontal (not rolled) and with the axis vertical. Each welder shall be allowed to weld only in the position in which he has qualified and shall be required to identify his welds with his specific code marking signifying his name and number assigned.
- D. Examination Results: Provide the COR with a list of names and corresponding code markings. Retest welders who fail to meet the prescribed welding qualifications. Disqualify welders, who fail the second test, for work on the project.
- E. Beveling: Field bevels and shop bevels shall be done by mechanical means or by flame cutting. Where beveling is done by flame cutting,

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surfaces shall be thoroughly cleaned of scale and oxidation just prior to welding. Conform to specified standards.

- F. Alignment: Utilize split welding rings or approved alternate method for joints on all pipes above two-inches to assure proper alignment, complete weld penetration, and prevention of weld spatter reaching the interior of the pipe.
- G. Erection: Piping shall not be split, bent, flattened, or otherwise damaged before, during, or after installation. If the pipe temperature falls to 32 degrees F or lower, the pipe shall be heated to approximately 100 degrees F for a distance of one foot on each side of the weld before welding, and the weld shall be finished before the pipe cools to 32 degrees F.

**H. Non-Destructive Examination of Piping Welds:**

1. The COR may require up to ten percent of the welded piping joints to be examined using radiographic testing. If defective welds are discovered the COR may require examination of all pipe joint welds. All welds will be visually inspected by the COR.
  2. An approved independent testing firm regularly engaged in radiographic testing shall perform the radiographic examination of pipe joint welds. All radiographs shall be reviewed and interpreted by an ASNT Certified Level III radiographer, employed by the testing firm, who shall sign the reading report.
  3. Comply with ASME B31.1. Furnish a set of films showing each weld inspected, a reading report evaluating the quality of each weld, and a location plan showing the physical location where each weld is to be found in the completed project. The COR reserves the right to review all inspection records.
- I. Defective Welds: Replace and reinspect defective welds. Repairing defective welds by adding weld material over the defect or by peening will not be permitted. Welders responsible for defective welds must be requalified.
- J. Electrodes: Electrodes shall be stored in a dry heated area, and be kept free of moisture and dampness during the fabrication operations. Discard electrodes that have lost part of their coating.