

Lesson 5 - Preparing a Welder Qualifications Test Fact Sheet

Steps to Prepare a Welder Qualification Test

- Obtain a Welding Procedure Specification (WPS)
- Collect materials and electrodes listed in the WPS
- Prepare weld plates
- Practice welding
- Weld the test plate

Obtain a Welding Procedure Specification (WPS)

- All aspects of the WPS must be carefully followed
- Information that the WPS will provide includes:
 - Welding process and polarity
 - Joint design and position
 - Base metal and filler metal/electrode specification and classification
 - Shielding used (gas type and composition, flux, etc.)
 - Technique to be used (stringer or weave, multiple or single pass)
 - Amperage, voltage, travel speed

Prepare a Welder Qualification Test

- Collect materials and electrodes listed in the WPS
- The electrode and filler metal listed must be used
- The base metal listed must be used

Prepare Weld Plates

- Cut plates to dimensions specified in AWS D1.1:2015 Figure 4.20
 - Minimum of 7" x 2 7/8"
 - Final bend specimen needs to be a minimum of 6"
- Plates must be cut so that the grain direction is longitudinal with the bend
- Test failure could occur if the grain direction is perpendicular to the bend

Prepare Weld Plates

Bevel weld plates to dimensions:

- 45-degree included angle V-Groove joint design
- Bevel each plate at 22.5 degrees
- Bevel edges to a point; do not leave a land
- It is perfectly okay to cut and bevel at the same time with a saw or thermal cutting torch set at 22.5 degrees cutting angle

Cut backing plate

- ¼" minimum, 3/8" maximum thickness.
- 1" minimum width.
- Cut should be at least 8" long. It needs to be longer than the weld plates to provide room to start and end your weld.
- Tack the plates at specified dimensions.
- Space weld plates ¼" apart onto the backing plate.
- Tack outside of the weld area:
 - Tack at ends on extra length of backing plate.
 - Tack on the back of the weld plates.

Practice Welding

- Set up a welder and collect some scrap metal.
- Practice welding with the specified electrodes until desired results are achieved.
- Ensure that your welder is set to the specified range.
- Record volts and amps being used for the welding test.

Weld the Test Plate

- Have an inspector or a weld test conductor validate that the test plate is properly prepared and that the welder is properly set.
- Position the test plate as indicated on the WPS.
 - 1G = Flat position
 - 2G = Horizontal position
 - 3G = Vertical position
 - 4G = Overhead position
- Complete the weld.

Source: American Welding Society (AWS) D1.1:2015 Structural Welding Code - Steel