

# **REFERENCE SYLLABUS**

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**For**

**PRESSURE TACK WELDER**

**CERTIFICATE OF COMPETENCY  
EXAMINATION**

**AB-250**

**Edition 2, Revision 1, 2017-11-15**



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**GENERAL INFORMATION**

**Introduction:**

This Syllabus is intended to assist candidates preparing for the Pressure Tack Welder Certificate of Competency Examination pursuant to the Alberta Safety Codes Act, Pressure Welders Regulation. The Pressure Tack Welder test requires a candidate to deposit two multipass groove welds in both the vertical (3G) and overhead (4G) positions on one test coupon. Successful candidates will be qualified to deposit only groove and fillet tack welds.

The Tack Welder's Certificate of Competency will limit their welding to:

1. Individual tack welds that do not exceed 3 inches (76mm) in length
2. The aggregate length of the root tack welds on circumferential joints in pipe and tube shall not exceed 25% of the weld circumference.

**Eligibility:**

To qualify to take a Pressure Tack Welder Certificate of Competency examination, a candidate must be either an Apprentice or Journeyman; boilermaker, steamfitter pipefitter, structural steel and plate fitter or welder under the Apprenticeship and Industry Training Act.

To pass a Pressure Tack Welder Certificate of Competency examination, a candidate must pass the performance qualification test required by the Administrator and conducted by a Safety Codes Officer.

**Application to Undertake Examination:**

A candidate for examination shall, at least seven days before the examination date, deliver to the Safety Codes Officer, a completed application form (AB-247).

Each person applying to take an examination shall pay the specified fee.

The candidate must show picture I.D. and eligibility documentation at the examination.

The candidate shall have an ABSA registered welding procedure specification (WPS) provided by the employer, prospective employer or testing organization.

The following procedure outlines the manner in which the performance qualification tests will be conducted by ABSA for the Pressure Tack Welder Certificate of Competency.

**PERFORMANCE QUALIFICATION TEST**

**Test Coupon:**

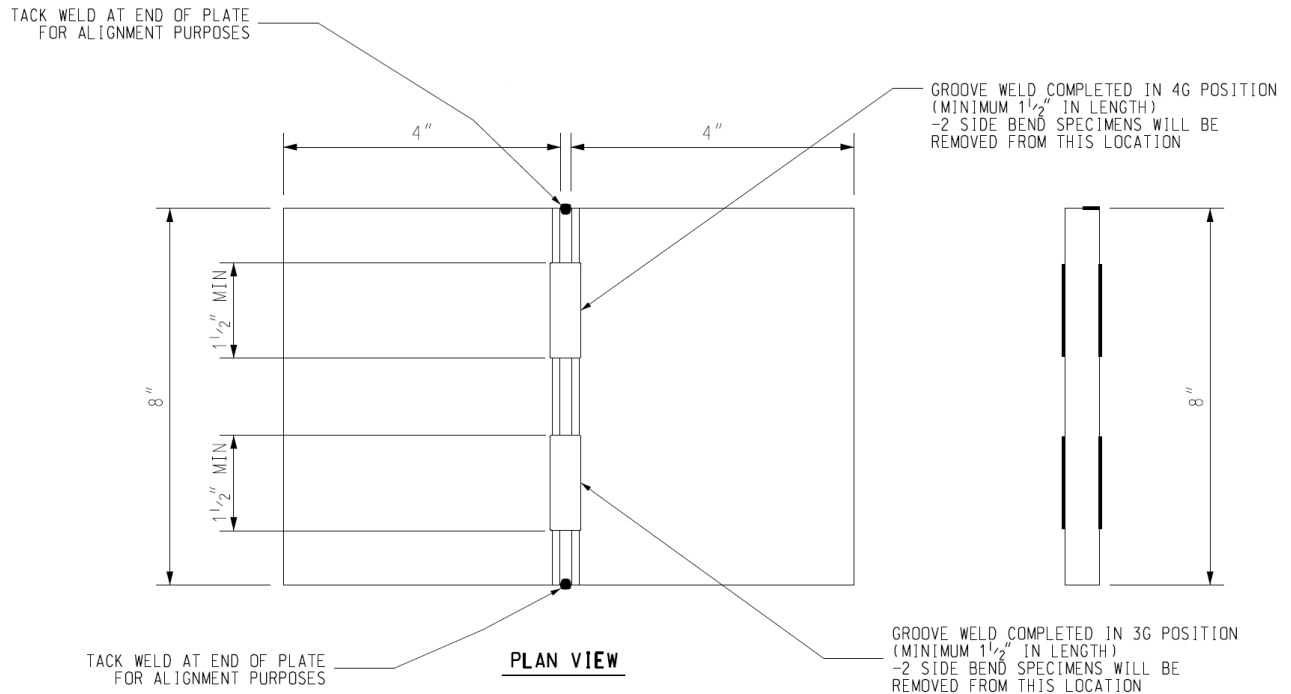
The one (1) test coupon\* shall consist of two carbon steel plates (ASME P-No. 1 material), each 4" x 8" x 3/8" thick (T). Each plate shall be beveled one side, along the 8" length with 30° - 37.5° feather edge bevels (60° - 75° included angle). See Figure 1.

\*Note: As an alternative, two coupons that conform to the above requirements may be used. One coupon shall be welded in the 3G position and the other shall be welded in the 4G position.

**Test Positions:**

1. The coupon will be secured in the 3G (vertical position) and a groove weld completed in the bottom half of the test coupon. The groove weld shall be a minimum of 1.5" in length.
2. The coupon will then be secured in the 4G (overhead position) and a groove weld completed in the remaining half of the test coupon. The groove weld shall be a minimum 1.5" in length.

**Figure 1**



**Preparation for Groove Welds:**

When preparing coupons for the groove welds, the size of the root face (land) and the width of the root gap (spacing) shall be at the candidate's discretion.

Tack welds at the ends of the plate for alignment purposes may be performed in the flat position.



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**Welding:**

The candidate shall place the coupon in the 3G position and then alert the Safety Codes Officer to mark the position and the height of the coupon. Once the coupon is positioned for welding, the marked coupon and positioner shall not be moved. The candidate will then complete the groove weld in the 3G portion within the limits of the essential variables applicable to the referenced WPS and Figure 1. The candidate will deposit as many beads and layers as necessary to fill the joint. The candidate will present the coupon to the Safety Codes Officer for evaluation\* upon completion of the 3G groove weld.

If the 3G groove weld is acceptable, the candidate shall reposition the coupon in the 4G position and then alert the Safety Codes Officer to mark the position and the height of the coupon. Once the coupon is positioned for welding, the marked coupon and positioner shall not be moved. The candidate will then complete the groove weld in the 4G portion within the limits of the essential variables applicable to the referenced WPS and Figure 1. The candidate shall deposit as many beads and layers as necessary to fill the joint. The candidate will present the coupon to the Safety Codes Officer for evaluation\* upon completion of the 4G groove weld.

\*Evaluation by the Safety Codes Officer shall be the visual examination in accordance with the acceptance criteria set out below.

A maximum of two processes and two F-No. electrodes may be used on each weld. If the candidate uses more than one process or F-No Electrode he/she shall present the coupon to the Safety Codes Officer prior to welding with the second process or F-No. Electrode.

**Examination Time:**

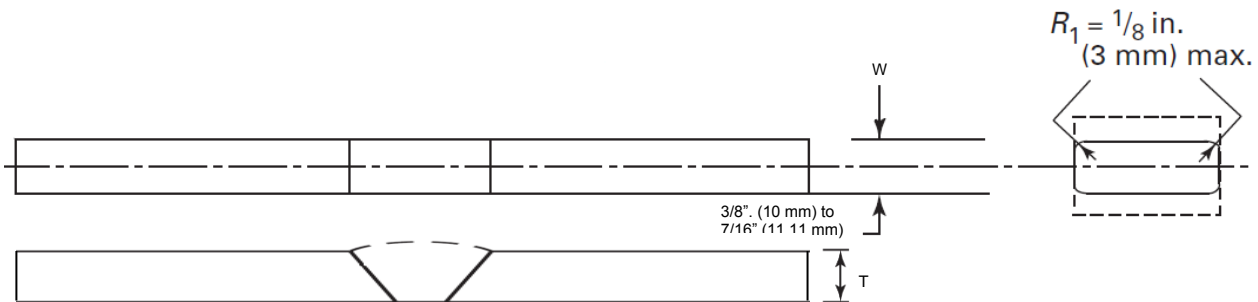
Candidates will have two (2) hours to prepare and complete the test coupons, and one (1) hour to prepare the side bend specimens.

**Bend Specimens:**

Two side bend specimens are required for each position (3G & 4G), four total. Specimens shall be removed and appropriately prepared to meet the requirements of ASME Section IX (torch flame cutting is permissible).

The specimens width (W) shall be between 3/8 of an inch and 7/16 of an inch, and ground flush on both sides with edges deburred. Candidates may radius the corners of the specimens to 1/8 inch maximum. The coupon thickness (T) shall be the thickness of the test coupons.

Figure 2.



**\*Acceptance Criteria:**

All groove welds shall meet the visual examination criteria described below:

- uniform width,
- free of cracks,
- free of craters,
- maximum reinforcement and protrusion shall not exceed 1/8",
- no visible slag,
- no incomplete fusion (lack of fusion),
- free of exposed porosity,
- no arc strikes,
- no undercut exceeding 1/16 inch, and
- confirm length of groove weld.

The guided bend tests shall have no open defects in the weld or heat affected zone exceeding 1/8 inch measured in any direction on the convex surface of the specimen. Open defects occurring on the corners of the specimen during bending shall not be considered, unless there is evidence that they result from slag inclusions, lack of fusion, or other internal defects. The failure of any bend specimen shall be considered as a complete failure of the test.

The performance test may be terminated at any stage of review, if it becomes apparent that the candidate does not have the required skill to produce satisfactory results or is taking an excessive length of time to complete any phase of the test.

**Candidates passing the examination:**

Candidates successful in passing this examination will be issued a Pressure Tack Welder Certificate of Competency.

**Candidates failing the examination:**

A candidate failing to pass any performance qualification test conducted by a Safety Codes Officer shall not be permitted to take a re-test for a period of one month from the date of the failed test, unless permitted to do so by a Safety Codes Officer.

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A candidate failing to pass two consecutive performance qualification tests, conducted by a Safety Codes Officer, is not permitted to take a further re-test for a period of 3 months from the date of the last test taken, unless the candidate provides proof of having successfully completed an upgrading course in pressure welding satisfactory to the Administrator.