ABSA
the pressure equipment safety authority

REFERENCE SYLLABUS

For

GRADE C
PRESSURE WELDER

CERTIFICATE of COMPETENCY
EXAMINATION

GENERAL INFORMATION

INTRODUCTION:

This syllabus is intended to assist employers, prospective employers and testing organizations who represent eligible candidates preparing for the Grade C Pressure Welder Certificate of Competency examination pursuant to the Alberta Pressure Welders Regulation.

The Grade C Certificate of Competency is a temporary certification intended to maintain the level of pressure equipment safety while helping to satisfy Alberta's need for qualified pressure welders. The Grade C Certificate of Competency is issued under specific and restricted conditions.

ELIGIBILITY

To qualify to take the Grade C Pressure Welder Certificate of Competency examination a candidate must meet one of the following requirements:

a) Has been engaged in welding in Alberta for a period and type of welding acceptable to the Administrator
b) Has been engaged in welding outside Alberta for a period of 36 months and holds a pressure welder certification
c) Is an apprentice welder in the 2nd or subsequent year of their apprenticeship within a Canadian jurisdiction
d) Is a journeyman welder from a Canadian jurisdiction
e) Has qualifications equivalent to a Grade B pressure welder if coming into Alberta for work of an urgent nature

APPLICATION TO UNDERTAKE EXAMINATION

A candidate's employer, prospective employer or testing organization shall make application on behalf of the candidate at least seven days before the examination date, by submitting a completed application form (AB-69) prescribed by the Administrator to an ABSA Safety Codes Officer.

The prescribed fee shall accompany the application.

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

PERFORMANCE QUALIFICATION TEST

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

There are several types of performance qualification tests. These are based upon the eligibility criteria and the production welding intended for the applicant. The types of tests are:

A) Standard Test
B) Specialty or Urgent Nature Test
C) Apprentice Welder Test

A) Standard Test

Test Coupon

Test coupons shall be carbon steel seamless pipe with a 30 degree (+/- 5 degrees) beveled to a feather edge.

The candidate may choose one of the following pipe diameter and minimum thickness combinations:

i) NPS 6 schedule 80*,
ii) NPS 2 schedule XXH*, or
NPS 2 ½ schedule 160*

*Substitution of a thicker coupon is permissible.

Test Positions
2G -5G for a NPS 6 coupon
6G for a NPS 2 or NPS 2 ½ coupon

Backing
None/open root

Welding variables
Candidate to follow the welding variables specified in the registered welding procedure of the employer, prospective employer or testing organization.

Examination time
Candidates will have 3.5 hours to prepare, tack and weld the test coupons and 1 hour to prepare the bend coupons (see note).

Preparation and Tacking
Preparation and tacking shall be within the manner specified by the welding procedure that is to be used for the performance test.

Welding

The ABSA Safety Codes Officer will inform the candidate as to the manner and welding sequence that will be followed for the welding of the test coupon. The Safety Codes Officer will also establish, with the candidate, the mandatory evaluation points. The candidate will inform or present the weld test coupon to the Safety Codes Officer for assessment at these evaluation points.

The performance test may be terminated at any stage if it becomes apparent to the ABSA Safety Codes Officer that the candidate does not have the required skill to produce satisfactory results or is taking excessive length of time to complete the welding.

B) Specialty or Urgent Nature Test

The type of performance qualification test is to be determined by the employer, prospective employer or testing organization in consultation with the ABSA Safety Codes Officer, for the intended application.

Welding of the test coupons shall be in accordance with the registered welding procedure of the employer, prospective employer or testing organization. The test coupons shall be tested in accordance with requirements of ASME Section IX. The welding sequence and evaluation points must be established with the ABSA Safety Codes Officer before the welding of the test coupon commences.

C) Apprentice Welder Test

The performance qualification test will be determined by the candidate's employer or prospective employer or testing organization relative to the candidate's skill set and abilities. It is recommended that the proposed performance qualification test be reviewed with the ABSA Safety Codes Officer before the application is submitted. The welding sequence and evaluation points must be established with the ABSA Safety Codes Officer prior to the welding of the test coupon.

Bend Specimen Requirements

2G/5G specimen

Six bend specimens (3 root and 3 face) are required. The specimens shall be removed in accordance with ASME Section IX figure QW-463.2(g).

6G specimen

Four side bends are required. The specimens shall be removed in accordance with ASME Section IX figure QW-463.2(e).

Other specimen types

As specified in ASME Section IX QW-452 and QW-453

NOTE: Upon confirmation with the Safety Codes Officer prior to starting the test, arrangements can be made for a volumetric evaluation (RT or UT) of the test coupons if a mechanical bend test is impractical.

Evaluation of Bend Test Coupons

The candidate shall present the bend test coupons to the ABSA Safety Codes Officer who will evaluate the coupons, and if acceptable witness the bend test, and evaluate the coupons again after bending. The acceptance criteria for the examination are:

The root pass shall be of uniform width and the penetration not exceed 1/8 inch maximum.

All welds shall be free of excessive penetration, cracks, craters, exposed porosity, undercut, and lack of fusion.

The finished weld shall be uniform, free of undercut or arc strikes. Excessive weld reinforcement is not permitted and the weld cap must not exceed 1/8 inch in height. 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 concave surface of the specimen. Open defects occurring on the corners of the specimen 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.

If volumetric examination is used in lieu of mechanical testing, the acceptance criteria of ASME Section IX (QW-191) shall be satisfied.

Certification and Performance Qualification

A candidate successfully passing this examination will be issued a Certificate of Competency as a Grade C Pressure Welder with the performance qualification information stated on the reverse side of the certificate. No separate performance qualification card is issued.

The Certificate of Competency is valid for up to two years from the date of issuance. If the Certificate of Competency is for an urgent nature the term will not exceed 30 days.

Candidates Failing the Examination

A candidate failing to pass the Grade C Pressure Welder Certificate of Competency examination conducted by the ABSA Safety Codes Officer shall not be permitted to take a re-test for a period as determined by the ABSA Safety Codes Officer in consultation with the candidate's employer, prospective employer or testing organization.