

## WELDER CERTIFICATION RULES AND REGULATIONS

**PURPOSE:** Sections 1705.2.2.1.3 and 2204.1 of the Los Angeles Building Code require that welders be qualified in accordance with the American Welding Society (AWS) and certified by the Department, for each type of operation involved.

**Exception:** Welding performed in the shop of an approved fabricator.

The rules and regulations specified herein are established in accordance with Section 1705.2.2.1.3 which provides that the Department shall establish such rules and regulations setting forth conditions precedent to the issuance of "Welders Certification".

**A. Definitions.** Except as defined herein, terms and definitions shall have their accepted meaning as shown in ANSI/AWS 3.0 Standard Welding Terms and Definitions. For the purpose of these Rules and Regulations, the following definitions shall apply:

**Certified Welder.** A person possessing a currently valid certificate issued by the Department of Building and Safety attesting to his or her approval to perform welding in one or more of the classifications specified herein.

**Manual Welding Process.** Welding wherein the entire welding process is performed and controlled by hand. This method is limited to the Shielded Metal Arc Welding (SMAW) process.

**Semi-automatic Welding Process.** Welding with equipment which feeds filler metal automatically as needed by the welder. The advance of the welding and the arc position are manually controlled. This method is limited to the Flux Cored Arc Welding (FCAW) and Gas Metal Arc Welding (GMAW) processes.

**Welder.** A person who performs a manual or semi-automatic welding operation.

**B. Welder Classifications.** Certifications shall be issued in the following welder classifications:

**Structural Steel.** This classification shall include the welding of structural carbon steel members 1/8 inch or greater in thickness and fillet welding of tubular structures.

**Tubular Structures.** This classification shall include the complete joint penetration welding of carbon steel less than 24 inches in diameter, structural tubular material for T, Y and K connections that are part of the primary or secondary structural frame of a building.

**Light Gage Steel.** This classification shall include the welding of structural panels or members of sheet and/or strip of 3/16 inch or less in thickness.

**Reinforced Steel.** This classification shall include the welding of reinforced steel for concrete and masonry construction, but does not include welding of shear studs for composite construction.

**Aluminum.** This classification shall include the welding of aluminum that is used structurally.

**Stainless Steel.** Classification for welding of structurally used stainless steel.

**Specialty.** This classification shall include the welding of structural materials not designated by any of the classifications above, such as stainless steel, cast steel to rolled steel, and carbon steel to stainless or other dissimilar material.

**C. Application for Certification.** Applications for approval as a Certified Welder shall be filed on a form furnished by the Department and shall be submitted with the applicable fees as specified in Section 1705.2.2.1.3 of the Los Angeles Building Code. The applicant shall set forth his or her appropriate experience on the form. Two by 1 ¼" full faced photographs, taken within one year of the date of application, shall accompany each application.

Upon the Department's acceptance of the application and successful completion of the applicable examinations, a document identifying the applicant as a Certified Welder will be issued by the Department designating the classification(s) for which the welder is approved to weld using the manual process. The certification shall also indicate the classifications, if any, that the welder is approved to perform using the semi-automatic process.

Nothing herein shall be deemed to prohibit any one person from being qualified for more than one classification of welding, provided that he or she makes separate application, passes the required examinations, pays the required fees for each category and process and is duly approved and certified by the Department for each such classification. No additional fee will be charged for an application for approval to use the semi-automatic welding process whether such application is filed at the time of the application for the manual process or subsequent thereto.

The certification of a welder shall be valid for a period of three years from the date of issuance and may be renewed for additional three year periods in accordance with paragraph G below.

**D. Test Requirements for Certified Welders.** Applicants shall be tested through an examination process comprised of two parts. Part I shall test the applicant's knowledge of the principles and theory of welding and shall be administered by the Department and is herein referred to as the "Department Examination." In Part II of the examination, the applicant shall demonstrate his or her proficiency to weld by performing prescribed tests that shall be monitored, tested and reported to the Department by a testing agency approved by the Department to conduct such tests. Such test is herein referred to as the "Performance Test." Separate examinations are to be given for each welder classification requested.

**Part I - Department Examination.** For certification, the applicant must successfully pass the Department Examination. It is recommended that the Department Examination shall be taken prior to taking the Performance Test.

The Department Examination shall be based on the specifications of the American Welding Society, the requirements of the Los Angeles City Building Code relating to the welding classification for which the certification is requested and accepted welding practice. Such examination shall include, but not necessarily be limited to, the following items:

1. Equipment normally used in welding; and
2. Electrode designations, identification and uses; and
3. American Welding Society Standard Weld Symbols; and
4. Interpretation of required welds and joint preparations as shown by details, symbols or notes on shop and field plans; and
5. Welding processes; and
6. AWS prequalified joints.

**Part II - Performance Test.** All applicants shall be required to successfully pass the performance

test specified in this section in each classification applied for using the Manual Welding Process. In addition, applicants requesting certification using the Semi-automatic Process shall also be required to pass the performance test specified in this section using that process in each classification applied for. Upon completion of the required test welds by the applicant, a report shall be submitted by an Approved Testing Agency to the Department indicating the tests performed and the test results.

1. **Structural Steel Classification.** To qualify, the applicant shall successfully pass the qualification test prescribed in Section 4, Part C of the publication Structural Welding Code-Steel, AWS D1.1-10, with the following modifications:
  - b. All welders shall qualify with the shielded metal arc welding (SMAW) process using a group F4 electrode.
  - c. Test plates, shown in AWS D1.1, Figure 4.21 for unlimited thickness, shall be ASTM A-36 steel and welded in the 3G (Vertical) and 4G (Overhead) position.
  - d. Tests specified in AWS D1.1 Table 4.11 are required.
2. **Tubular Structures Classification.** To qualify, the applicant must have a valid certificate in the Structural Steel classification and shall successfully pass the qualification test prescribed in Section 4 Part C of AWS D1.1-10 with the following modifications:
  - a. All welders shall qualify with the shielded metal arc welding (SMAW) process using a group F4 electrode.
  - b. The test joint, shown in Figure 4.27 for T, Y and K Connections, shall be welded using ASTM A-500 Grade B, 6 inch round or square tubing in the 6GR (inclined fixed) position.
  - c. Tests specified in AWS D1.1 Table 4.11 are required.
3. **Light Gage Steel Classification.** To qualify the applicant shall successfully pass the Welder Qualification Tests shown in table 4.4 of AWS D1.3-08 Structural Welding Code-Sheet Steel (or current edition) with the following modifications:
  - a. Contrary to footnote 1 in Table 4.4, only one test for each assembly is required.
  - b. All tests shall be performed with shielded metal arc welding (SMAW) process using a group F4 electrode for sheet to supporting member. An F-3 electrode is acceptable for sheet to sheet welds.
  - c. All tests shall be performed using 10 gage ASTM A570 Gr. 40 without coating.
  - d. Test assemblies 4.1, 4.2A, 4.3B and 4.4 only are required for qualification.
    1. Two 4" x 4" sheets are required for test assembly 4.1
    2. For test assembly 4.2A the fillet weld lap joint and fillet weld T-joint are required.
  - e. Test assemblies 4.1, 4.2A and 4.3B shall be welded in the vertical and overhead positions.
  - f. Vertical weld test assemblies shall be both upward and downward progression.
  - g. Test assembly 4.4 shall be performed with 18 gage ASTM A570 Gr.40 welded in the flat position.
  - h. The essential variable changes in Table 4.2 apply.
  - i. Separate welder qualifications are required for welding galvanized sheet steel. Tests shall be performed using ASTM A653SQ Gr. 40.
4. **Reinforcing Steel Classification.** To qualify, the applicant shall successfully pass the Welder Qualification requirements of Section 6.3 of AWS D1.4-11 Structural Welding Code-Reinforcing Steel (or current edition) with the following modifications:
  - a. All tests shall be performed with the shielded metal arc welding (SMAW) process in the 3G (Vertical) and 4G (Horizontal) positions.

- b. Applicants need only qualify with the Direct Butt Joint (Detail A) and Indirect Butt Joint (Detail B) shown in Figure 6.6 of AWS D1.4.
  - c. Reinforcing steel used for qualifying tests shall be any Group III steel shown in Table 5.1 of AWS D1.4 with a carbon equivalent (C. E.) equal to or greater than 0.65%. The specimens shall be welded with preheat and interpass temperature as indicated in Table 5.1 using E9018 electrodes. Splice plates for indirect butt joint shall be ASTM A-36.
  - d. The number and type of test for each specimen shall be according to applicable portions of Section 6.3.5 through 6.3.7.3 of AWS D1. 05.
5. **Aluminum Classification.** To qualify the applicant shall successfully pass the Performance Qualification Test specified in Section 3.17 of the Structural Welding Code -Aluminum AWS D1.2/D1.2M (current edition) with the following modifications:
- a. Base and backing material shall be an alloy 6061 T-6 aluminum.
  - b. The groove weld qualification test for unlimited thickness using the details in Figure 3.26 is required.
  - c. Weld tests shall be performed in the 3G (vertical) and 4G (overhead) positions using the gas metal arc welding (GMAW) process.
  - d. Tests specified in AWS D1.2 Table 3.8 are required.
  - e. Acceptance criteria as specified in Sections 4.6.2 and 4.8.3 of AWS D1.2 shall apply. Welders of structural aluminum tubing shall also successfully pass the qualification test in Section 3.19 for T, Y or K connections.
6. **Stainless Steel Classification.** To qualify an applicant shall successfully pass the Performance Qualification Test specified in Chapter 4, Part B of the Structural Welding Code - Stainless Steel, AWS D1.6:1999, with the following considerations:
- a. Base and backing material shall comply with Section 4.7.5 except that steels listed in ANSI/AWS D1.1, Groups I or II will not be used.
  - b. Groove weld qualification test will be per Table 4.4 for either Plate-Groove welds in positions 2G, 3G and 4G, or Pipe-Groove welds in position G6.
  - c. Joint to be used will be designated as B-L2a from Figure 3.6.
  - d. Test coupon thickness will be 3/8" minimum and 3/4" maximum with one face bend and one root bend being tested within those parameters noted in Figure 4.15.
  - e. Welders shall be qualified in each process used and for each GMAW mode used.
  - f. Electrodes used shall be of an F-5 or F-6 classification.
7. **Specialty Classifications.** To qualify for this classification a welder must first possess a currently valid welders license for Structural Steel and successfully pass the qualification test for the specific material and process in accordance with the provisions of Standard for Welding Procedure and Performance Qualifications (AWS B2.1). The welding procedure and performance test results shall be submitted to the Department for evaluation by the Materials Control Section and a \$50 fee paid as specified in Section 91.2204.1 LAMC for welding procedure approval.

**E. Failure to Pass Exam of Test.**

1. Department Examination. Every applicant for welder certification who fails to pass the Department Examination shall not be eligible for another examination until 30 calendar days have elapsed.
2. Performance Test. Where one or more test welds performed by an applicant fails to pass the prescribed tests, the applicant may immediately be retested in accordance with Section



4.33.1.1 of AWS D1.1 or may take a complete retest in accordance with Section 4.32.1.2 after a 30 day waiting period. Should a failure occur in one of the immediately retested specimens made in accordance with Section 4.33.1.1, the complete retest after a 30 day waiting period is required.

3. Second Examination. Applicants who fail to pass the Departmental Examination and/or the Performance Test for a second time may be re-examined or tested only after providing evidence of further training and/or job experience and after 90 days have elapsed.
4. Fees. Where fees are required, they shall be paid for each new examination. No fees paid will be refunded upon failure to pass such examination or test.

#### **F. Suspension, Revocation and Cancellations.**

1. The General Manager of the Department of Building and Safety may suspend, revoke or refuse to renew a certification for the following and/or other reasons.
  - a. Failure of a Certified Welder to perform welding in compliance with all of the conditions set forth in the building code and contained herein.
  - b. Where quality of workmanship is less than that required by the Los Angeles Municipal Code.
  - c. Where a violation of Article 8, Chapter 9 of the Los Angeles Municipal Code is found to exist.
  - d. Where a certificate has been issued using tests which are not valid.In an action to suspend or revoke a certificate, the procedure prescribed by provisions of Article 8, Chapter 9 of the Los Angeles Municipal Code shall be followed. If during such a proceeding, evidence of criminal or other unlawful acts on the part of the welder are disclosed, it shall be incumbent upon the General Manager to notify the City Attorney of such acts.
2. The Department may cancel any welder certificate upon receipt of a voluntary request of the holder thereof setting forth in writing the reason for such request.
3. No portion of fees paid will be refunded if a certificate is canceled.

#### **G. Renewal of Certification.** Application for renewal of certification in each category shall be made before the date of expiration and the required fees paid. Two 1" X 1" 1/4", full-faced photographs, taken within one year of application for renewal, must accompany each application.

Applicants for renewal who have not performed any welding in each classification requested for any continuous six-month period prior to renewal, shall be required to retake the Department Examination (Part I) and Performance Test (Part II). Applicants for renewal of certification to utilize the semi-automatic welding process, who have not performed welding in the process in any continuous six-month period prior to renewal, shall retake the Performance Test (Part II) using semi-automatic equipment in at least one of the welder classifications for which renewal is sought. A list of locations where the applicant has performed structural welding during the previous license period and a brief description of the work shall accompany each renewal application. Such list need not exceed five separate locations.

While it is the responsibility of the welder to know the expiration date of his/her license, welding certificates that have expired may be renewed by the Department within 30 days of the expiration date. Certificates that have been expired for more than 30 days may be renewed when the General Manager finds extenuating circumstances exist.

