



## Engineering Bulletin 030

### RE: Canadian Welding Bureau Certification

#### Why Get It and What Does It Mean?

The National Building Code of Canada (NBC) is the model code for all buildings in Canada. All Canadian provinces and territories adopt the NBC or adopt it with amendments. The NBC requires that welded steel structures be designed per the Canadian Standards Association (CSA) standard S16, *Design and construction of steel structures*. CSA S16 requires that all welds be designed per CSA W59, *Welded steel construction*. CSA W59 requires that all welding be completed by an organization certified to CSA W47.1, *Certification of companies for fusion welding of steel*.

The Canadian Welding Bureau (CWB) is the organization which certifies fabricator's compliance with CSA 47.1. All steel building manufacturers supplying in Canada must therefore be CWB certified for their welding operations.

#### CWB Certification Basics

Company certification requires that a Welding Engineer be engaged or employed to write a Welding Procedure Specification (WPS) and Welding Procedure Data Sheets (WPDS) for each joint that will be welded. The Welding Engineer is a Canadian licensed Professional Engineer that has been certified by the CWB by passing the welding engineer exam. The Welding Engineer must be retained for the duration of the company's CWB certification to update the WPS and WPDS as required. The Welding Engineer also visits the welding facility every second month to review the welding operations.

The WPS and WPDS specify all aspects of each joint: the welding process, such as Gas Metal Arc Welding (GMAW), the electrode type and size, the shielding gas type and flow rate, the welding polarity and voltage, the electrode feed rate and travel speed, as well as the applicable base metals for the joint. The welding electrode and shielding gas (if applicable) must also be CWB certified.

The company must employ a Welding Supervisor who is an experienced welder and is responsible for ensuring the quality of the welding operations. The Welding Supervisor is CWB certified by taking a prescribed course and passing the exam.

Finally, a welder achieves a CWB qualification by passing a weld test which is administered by the CWB. The CWB weld tests are configured to represent the joints and positions that the welder will be completing. The weld test coupon is typically subjected to a 180° bend test and visually examined by the CWB to verify compliance with the acceptance criteria in the W47.1 standard.

Once the above requirements are in place, the CWB will audit and certify the company operations. The CWB completes audits of the welding operations quarterly to validate continued compliance with the requirements of CSA W47.1.

### **Quality and Risk**

From an operations standpoint, the process of gaining and maintaining CWB Certification requires a company to have a robust suite of standard operating procedures for welding quality, safety, maintenance, and procurement. Internal and external audits required to maintain CWB Certification identify areas for improvement. This ongoing scrutiny helps to uphold quality standards and encourages a culture of continuous process improvement. Adhering to CWB standards is a critical part of ensuring that fabricated steel components meet the requisite reliability required by the Building Code.

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