

Certification of welding inspection organizations



**CANADIAN STANDARDS
ASSOCIATION**



Legal Notice for Standards

Canadian Standards Association (CSA) standards are developed through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA is a private not-for-profit company that publishes voluntary standards and related documents. CSA has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA and the users of this document (whether it be in printed or electronic form), CSA is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA's and/or others' intellectual property and may give rise to a right in CSA and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.

CSA Standards Update Service

W178.1-08

February 2008

Title: *Certification of welding inspection organizations*

Pagination: **19 pages** (vii preliminary and 12 text), each dated **February 2008**

Automatic notifications about any updates to this publication are available.

- To register for e-mail notifications, and/or to download any existing updates in PDF, enter the Online Store at **www.ShopCSA.ca** and click on **My Account** on the navigation bar.

The **List ID** for this document is **2020068**.

- To receive printed updates, please complete and return the attached card.



Name _____

Organization _____

Address _____

City _____

Province/State _____

Country _____ Postal/Zip Code _____

E-mail _____

I consent to CSA collecting and using the above information to send me updates relating to this publication.

Visit CSA's policy on privacy at www.csagroup.org/legal to find out how we protect your personal information.

W178.1-08

Affranchir suffisamment
Place Stamp Here

**ASSOCIATION CANADIENNE DE
NORMALISATION**

BUREAU CENTRAL DE L'INFORMATION
5060, SPECTRUM WAY, BUREAU 100
MISSISSAUGA ON L4W 5N6
CANADA

**CANADIAN STANDARDS
ASSOCIATION**

CONSOLIDATED MAILING LIST
5060 SPECTRUM WAY, SUITE 100
MISSISSAUGA ON L4W 5N6
CANADA

CSA Standard

W178.1-08
***Certification of welding
inspection organizations***



**CANADIAN STANDARDS
ASSOCIATION**

®Registered trade-mark of Canadian Standards Association

*Published in February 2008 by Canadian Standards Association
A not-for-profit private sector organization
5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6
1-800-463-6727 • 416-747-4044*

Visit our Online Store at www.ShopCSA.ca



100%



The Canadian Standards Association (CSA) prints its publications on Rolland Enviro100, which contains 100% recycled post-consumer fibre, is EcoLogo and Processed Chlorine Free certified, and was manufactured using biogas energy.

To purchase CSA Standards and related publications, visit CSA's Online Store at www.ShopCSA.ca or call toll-free 1-800-463-6727 or 416-747-4044.

ISBN 978-1-55436-672-9

Technical Editor: Jeremy Fisher

© Canadian Standards Association — 2008

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.

Contents

Technical Committee on the Certification of Welding Inspectors and Inspection Organizations iv

Preface vi

Foreword vii

1 Scope 1

2 Reference publications 1

3 Definitions 2

4 Administration 2

5 Requirements for obtaining certification 3

6 Requirements for maintaining certification 3

7 Welding inspection personnel 4

7.1 Welding inspection centre 4

7.2 Welding inspection supervisor 4

7.3 Welding inspectors 4

7.4 Equipment operators for nondestructive testing 6

7.5 Mechanical and metallographic testing operators 6

8 Product categories and welding inspection methods 6

8.1 General 6

8.2 Product categories 6

8.3 Welding inspection methods 6

9 Welding inspection procedures 7

10 Equipment maintenance and calibration 7

11 Records 8

Annexes

A (informative) — Standards covering product categories 9

Technical Committee on the Certification of Welding Inspectors and Inspection Organizations

J.H. Zirnhelt	Acuren, Oakville, Ontario	<i>Chair</i>
B. Godin	SGS Canada Inc., Calgary, Alberta	<i>Vice-Chair</i>
B. Ball	Ball Associates Engineering Ltd., Sherwood Park, Alberta	<i>Associate</i>
T. Culliton	Fleetway Facility Services, Saint John, New Brunswick	
G. Deleanu	Technical Standards & Safety Authority, Toronto, Ontario	
D. Domenichini	Domson Engineering & Inspection Ltd., Brampton, Ontario	
K. Hemmadi	City of Toronto, Toronto, Ontario	
M. Lewis	Ontario Power Generation Inc., Pickering, Ontario	
M. Lotfi	Procor Limited, Oakville, Ontario	
J.S. Mitchell	Petro-Canada Oil Sands Inc., Calgary, Alberta	
D. Mudge	CALTRAX Inc., Calgary, Alberta	
R.V. Murphy	Natural Resources Canada, CANMET, Ottawa, Ontario	
M.J. Pates	Pates Project Consulting, Kinburn, Ontario	
B. Perron	Dessau-Soprin, inc., Laval, Québec	
D. Rapinda	A.J.P. Engineering Services, Winnipeg, Manitoba	
D. Sargent	Sargent & Associates Engineering Ltd., Victoria, British Columbia	<i>Associate</i>

Y. Sénéchal	Canadian Welding Bureau, Laval, Québec	
V.P. Singh	Butler Inspection Group Ltd., Mississauga, Ontario	<i>Associate</i>
J. Torontali	Ontario Ministry of Transportation, St. Catharines, Ontario	
J. Fisher	Canadian Standards Association, Mississauga, Ontario	<i>Project Manager</i>

Preface

This is the fifth edition of CSA W178.1, *Certification of welding inspection organizations*. It supersedes the previous editions, published in 2002, 1996, 1990, and 1973 (as W178-1973, *Qualification Code for Welding Inspection Organizations*).

This Standard provides industry and public authorities with a set of requirements to appraise the capability of organizations supplying services in the welding inspection field. It is to be used in conjunction with CSA W178.2, *Certification of welding inspectors*.

The requirements of this Standard are intended to be applied in conjunction with quality management system standards, such as the CAN/CSA-ISO 9000 Standards, and with product category standards as listed in [Annex A](#).

This Standard was prepared by the Technical Committee on the Certification of Welding Inspectors and Inspection Organizations, under the jurisdiction of the Strategic Steering Committee on Welding and Structural Metals, and has been formally approved by the Technical Committee.

February 2008

Notes:

- (1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- (2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
- (3) *This publication was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this publication.*
- (4) *CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee.*
- (5) *All enquiries regarding this Standard, including requests for interpretation, should be addressed to Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.*
 - Requests for interpretation should*
 - (a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - (b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - (c) *be phrased where possible to permit a specific “yes” or “no” answer.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are published in CSA's periodical Info Update, which is available on the CSA Web site at www.csa.ca.

Foreword

The Canadian Welding Bureau (CWB) provides certification services for organizations who wish their products to be certified in conformance to this Standard.

In performing its functions in accordance with its objectives, the CWB does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of the CWB represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time this Standard is processed.

Some tests required by CSA Standards may be inherently hazardous. The CWB neither assumes nor accepts any responsibility for any injury or damage that may occur during or as the result of tests, wherever performed, whether performed in whole or in part by the CWB or any other party, and whether or not any equipment, facility, or personnel for or in connection with the test is furnished by the CWB or any other party.

In the event that the CWB is unable to resolve an issue relating to certification, there is an appeal procedure: the complainant should submit the matter, in writing, to the Chair of the CWB.

For information concerning application for certification to this Standard, address your inquiry to the Canadian Welding Bureau, 7250 West Credit Avenue, Mississauga, Ontario, L5N 5N1.

W178.1-08

Certification of welding inspection organizations

1 Scope

1.1

This Standard specifies the requirements for establishing and maintaining the certification of welding inspection organizations working within one or more product categories and using one or more inspection methods.

1.2

This Standard specifies the requirements for all welding inspection and testing to be performed by a certified welding inspection organization unless otherwise specified or agreed to by the authority having jurisdiction.

1.3

This Standard specifies the requirements for the maintenance and calibration of inspection equipment, as well as the requirements for the management of inspection records.

1.4

This Standard includes specific clauses that integrate the requirements of certification with those of the Canadian General Standards Board (CGSB) with respect to personnel performing radiographic, ultrasonic, magnetic particle, liquid penetrant, and eddy current examinations.

1.5

This Standard does not address safety issues associated with welding. It is the responsibility of the users of this Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations.

Note: *CAN/CSA-W117.2 addresses safety in welding, cutting, and allied processes.*

1.6

In CSA Standards, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; “may” is used to express an option or that which is permissible within the limits of the standard; and “can” is used to express possibility or capability. Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material. Notes to tables and figures are considered part of the table or figure and may be written as requirements. Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.