General requirements for rolled or welded structural quality steel/ Structural quality steel

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CANADA

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

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T. Koza	CSA, Mississauga, Ontario	*Project Manager*
H.W. Ellison *(Deceased)*	Hamilton, Ontario	

Preface

This is the sixth edition of CSA G40.20/G40.21, *General requirements for rolled or welded structural quality steel/Structural quality steel.* It supersedes previous editions published in 1998, 1992, 1987, 1981, and 1978.

This edition comprises amendments published in General Instruction No. 2 to the previous edition, corrections of errata, and new amendments approved by the Technical Committee on Structural Steel. These include

(a) a change in the location of tensile test samples from the web to the flange on W, HP, S, and M shapes;
(b) the adoption of CAN/CSA-G40.23 for assessment of the surface quality of plate;
(c) the acceptance under G40.20/G40.21 of products manufactured in conformance with ASTM A 992/A 992M, *Structural Steel Shapes;*
(d) the addition of requirements for cold-formed Z sections;
(e) revisions to the permissible variations in the dimensions of cold-formed channels; and
(f) the addition of Table 11, which provides the dimensions and mass (weight) of commonly available structural shapes and hollow structural sections, replacing and updating information in CAN/CSA-G312.3-M, *Metric Dimensions for Structural Steel Shapes and Hollow Structural Sections* (withdrawn in 2001).

These Standards are written in SI (metric) units, with yard/pound units included in parentheses. The SI units are in conformance with CSA Z234.1, *Metric Practice Guide.*

While the technical requirements of the metric and yard/pound versions are virtually the same, some differences do occur. Either the SI or the yard/pound units must be used, and any attempt to intermingle the two systems of units on any specific purchase of material may result in nonconformance with the Standards.

These Standards have been harmonized to the maximum possible extent with equivalent ASTM Standards A 6/A 6M and A 568/A 568M.

These Standards were prepared by the Technical Committee on Structural Steel, under the jurisdiction of the Strategic Steering Committee on Welding and Structural Metals, and have been formally approved by the Technical Committee.

February 2004

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.*

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G40.20-04
General requirements for rolled or welded structural quality steel

1 Scope

1.1
This Standard outlines the requirements that apply, unless otherwise specified in a purchase order or individual standard, to structural quality steel plates, shapes, sheet, sheet piling, cold-formed channels, hollow sections, Z sections, and bars conforming to the requirements of CSA G40.21.

Tables 11(a) to (h) of CSA G40.21 provide information on the dimensions and mass (weight) per unit length of structural shapes and sections commonly used in the construction of steel buildings and bridges.

1.2
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; and "may" is used to express an option or that which is permissible within the limits of the standard. 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. Legends to equations and figures are considered requirements.

1.3
The values stated in either SI (metric) or yard/pound units are to be regarded as standard. Within the text, the yard/pound units are shown in parentheses. The values stated in each system are not exact equivalents; each system must be used independently. Combining values from the two systems can result in nonconformance with this Standard.

2 Reference publications
This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below.

Note: *In cases where the editions listed below are replaced by newer editions during the life of this referencing Standard, users of this Standard are encouraged to investigate the possibility of applying the most recent editions.*

CSA (Canadian Standards Association)

G40.21-04
Structural quality steel

CAN/CSA-G40.23-94 (R2001)
Steel — Surface Finish of Hot-Rolled Plates and Wide Flats — Delivery Requirements

W47.1-03
Certification of Companies for Fusion Welding of Steel

W48-01
Filler Metals and Allied Materials for Metal Arc Welding