

CANADIAN SHEET STEEL BUILDING INSTITUTE

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ELECTROLYTIC ZINC COATED, CHROMATE TREATED, STRUCTURAL QUALITY STEEL SHEET FOR STEEL DECK CSSBI SPECIFICATION 301-84 (Imperial Units)

1.0 SCOPE

- 1.1 This specification covers continuously electrolytic zinc coated, chromate treated, structural quality steel sheet in coils and cut lengths intended for the manufacture of steel deck.

NOTE: In Canada, the product is currently marketed under the tradename ZincGuard-C.

- 1.2 Unless otherwise specified herein, steel sheet supplied to this specification shall meet all applicable requirements of the latest issues of ASTM Standards A591 *Steel Sheet, Cold-Rolled, Electrolytic Zinc Coated* and A611 *Steel, Cold-Rolled Sheet, Carbon, Structural* (Grades C or D Type 1).

NOTE: For hot-dipped zinc coated structural quality steel sheet, refer to CSSBI Specification 101-84.

For aluminum-zinc alloy (AZ) coated structural quality steel sheet, refer to CSSBI Specification 201-84.

2.0 LIMITATIONS

- 2.1 Steel sheet supplied to this specification shall be limited to the following base steel nominal thicknesses: 0.030, 0.036, 0.048, 0.060 and 0.075 inch. The maximum available width is 56 inches.
- 2.2 Zinc coating on steel sheet supplied to this specification shall be limited to the following coating designation: ZincGuard 102-C (0.102 oz/ft² coating weight, total both sides, chromate treated).

NOTE: The coating weight designations listed in ASTM Standard A591 are not applicable.

3.0 BASIS OF PURCHASE

- 3.1 Electrolytic zinc coated steel sheet in coils and cut lengths is produced to decimal thickness and thickness tolerances apply to the base steel nominal thickness, as given in Table 4. Order thickness shall be the same as the base steel nominal thickness.
- 3.2 Orders for material to this specification shall include the following information, as necessary, to adequately describe the desired product.
- 3.2.1 State specification designation (CSSBI 301-84) and grade of material (C or D Type 1).
- 3.2.2 Specify zinc coating designation (ZincGuard 102-C).
- 3.2.3 Specify whether oiled or not oiled.
- 3.2.4 Specify dimensions; thickness, width and length, if cut lengths.
- 3.2.5 Specify coil-size requirements; maximum weight, acceptable inside diameter (ID), maximum outside diameter (OD), if critical.

- 3.2.6 Specify copper-bearing steel if required.

- 3.2.7 State intended application.

- 3.2.8 State any special requirements.

NOTE: A typical ordering description is as follows:

"Electrolytic Zinc Coated Structural Quality Steel Sheet, CSSBI 301-84, Grade C, Coating Designation ZincGuard 102-C, Oiled, 0.036 x 39.4 in, by Coil, 20,000 lb. maximum, 20" ID, for Roof Deck".

4.0 CHEMICAL REQUIREMENTS

- 4.1 The base steel shall conform to the requirements for chemical composition, by cast or heat analysis, as prescribed in Table 1.

TABLE 1 — CHEMICAL REQUIREMENTS, BASE STEEL

	Composition %	
	Grade C	Grade D, Type 1
Carbon, max.	0.20	0.20
Manganese, max.	0.60	0.90
Phosphorus, max.	0.04	0.04
Sulphur, max.	0.04	0.04
Copper, when copper steel is specified, min.	0.20	0.20

5.0 MECHANICAL REQUIREMENTS

- 5.1 The base steel shall conform to the mechanical properties prescribed in Table 2 and in 5.2.

TABLE 2 — MECHANICAL REQUIREMENTS, BASE STEEL

	Grade C	Grade D, Type 1
Yield Strength, min.	33 ksi	40 ksi
Tensile Strength, min.	48 ksi	52 ksi
Elongation in 2 in., min.	22%	20%

- 5.2 Base steel bend tests shall be made on coated material. The specimen shall be capable of being bent at room temperature through 180 degrees, longitudinal or transverse, without major cracking of the base steel on the outside of the bent portion (as observed following removal of the coating). The inside diameter of the bend shall be 1.5 times the thickness of the specimen for Grade C material and 2.0 times for Grade D material.
- 5.3 Two tension tests and two bend tests for base steel shall be made on random samples of finished material from each cast or heat, except that one tension test and one bend test will be sufficient when the finished material from a cast or heat is less than 50 tons. Where material rolled from one cast or heat differs 0.050 inch or more in thickness, one tension test and one bend test shall be made from both the thickest and thinnest material rolled, regardless of the weight represented. Samples shall be prepared and tested in accordance with the methods specified in ASTM Standard A611, latest issue.

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6.0 COATING BEND TEST

- 6.1 Material shall be capable of being bent through 180 degrees in any direction without flaking of the coating on the outside of the bend. Flaking of coating within 1/4 inch of the edge of the bend specimen shall not be cause for rejection. The ratio of the bend diameter to the thickness of the specimen shall be 1.5 times the thickness for Grade C material and 2.0 times for Grade D material.
- 6.2 Coating bend test specimens shall be 2 to 4 inches wide. The specimens shall be cut not less than 2 inches from the edges of the test sheet.

7.0 DIMENSIONS AND TOLERANCES

- 7.1 Except for flatness tolerances of cut lengths, and thickness tolerances of base steel, all dimensions and tolerances shall be subject to the requirements of ASTM Standard A568, latest issue.
- 7.2 Flatness tolerances of cut lengths shall not exceed those given in Table 3.

TABLE 3 — FLATNESS TOLERANCES, CUT LENGTHS

Ordered Thickness, in.	Ordered Width, in.	Flatness Tolerance, in.
To 0.060 incl.	To 36 incl.	1/2
	Over 36 to 56 incl.	3/4
Over 0.060	To 56 incl.	1/2

NOTE: Flatness tolerance is defined as the maximum deviation from a horizontal flat surface.

- 7.3 Thickness tolerances of base steel shall not exceed those given in Table 4.

TABLE 4 — THICKNESS TOLERANCES, BASE STEEL

Base Steel Nominal Thickness, in.	Tolerance on Base Steel Nominal Thickness, Over (+) and Under (-), in.	
	0.075	+ .006
0.060	+ .006	-.004
0.048	+ .005	-.003
0.036	+ .004	-.002
0.030	+ .004	-.002

NOTE: Thickness is measured on uncoated base steel at any point across the width not less than 3/8 inch from an edge.

8.0 ORDER THICKNESS

- 8.1 Order thickness shall be the same as the base steel nominal thickness.

HISTORICAL REFERENCE ONLY