

Zinc
Coated
Structural
Quality
Steel
Sheet
for
Steel
Deck

Specification 101M-84
June, 1984

HISTORICALLY OBSOLETE REFERENCE ONLY



CANADIAN
SHEET STEEL
BUILDING INSTITUTE

ZINC COATED STRUCTURAL QUALITY STEEL SHEET FOR STEEL DECK

CSSBI SPECIFICATION 101M-84 (Metric Units)

1.0 SCOPE

- 1.1 This specification covers continuously hot-dipped zinc coated structural quality steel sheet in coils and cut lengths, intended for the manufacture of steel deck.
- 1.2 Unless otherwise specified herein, steel sheet supplied to this specification shall meet all applicable requirements of the latest issue of ASTM Standard A525M *General Requirements for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process*.

NOTE: For aluminum-zinc alloy coated structural quality steel sheet, refer to CSSBI Specification 201M.

2.0 LIMITATIONS

- 2.1 Steel sheet supplied to this specification shall be limited to the following base steel nominal thicknesses: 0.76, 0.91, 1.22, 1.52, 1.91 and 2.67 mm. The maximum available width is 1422 mm.
- 2.2 Zinc coating on steel sheet supplied to this specification shall be limited to one of the following coating designations: ZF75 (zinc-iron alloy coat), Z275, Z350, Z450, Z600 or Z700.

NOTE: The number in the Z-designation represents the minimum coating mass in g/m², total both sides of sheet, by triple spot test.

3.0 BASIS OF PURCHASE

- 3.1 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 5. Order thickness, given in Table 6, is overall sheet thickness consisting of the base steel nominal thickness and an allowance for the thickness of zinc coating.
- 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 101M-84) and grade of material (A or B).
 - 3.2.2 Specify zinc coating designation.
 - 3.2.3 Specify whether chemically treated (passivated) or not chemically treated.
 - 3.2.4 Specify whether oiled or not oiled.
 - 3.2.5 Specify dimensions; thickness, width and length, if cut lengths.
 - 3.2.6 Specify coil-size requirements; maximum weight, acceptable inside diameter (ID), maximum outside diameter (OD).
 - 3.2.7 State intended application.
 - 3.2.8 State any special requirements.

NOTE: A typical ordering description is as follows:

"Zinc Coated Structural Quality Steel Sheet, CSSBI 101M-84, Grade A, Coating Designation Z275, Chemically Treated, Oiled, 0.80 x 1000 mm by Coil, 10 tonnes maximum, 600 mm ID, for Exposed 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 A	Grade B
Carbon, max.	0.20	0.20
Phosphorus, max.	0.04	0.10
Sulphur, max.	0.04	0.04
Copper, when copper steel is specified, minimum	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 A	Grade B
Yield Strength, min.	230 MPa	255 MPa
Tensile Strength, min.	310 MPa	360 MPa
Elongation in 50 mm, min.	20%	18%

- 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 A material and 2.0 times for Grade B 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 tonnes. Where material rolled from one cast or heat differs 1.2 mm 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 A525M, latest issue.

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 6 mm of the edge of the bend specimen shall not be cause for rejection. The radius of the bend shall be as prescribed in Table 3.
- 6.2 Coating bend test specimens shall be 50 to 100 mm wide. The specimen shall be cut not less than 50 mm from the edges of the test sheet.

TABLE 3 — COATING BEND TEST

Coating Designation	Ratio of Bend Diameter to Thickness of Specimen	
	Grade A	Grade B
Z700	3	3
Z600	2	2
Z450	2	2
Z350	1.5	2
Z275	1.5	2
ZF75	N/A	N/A

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 A525M, latest issue.
- 7.2 Flatness tolerances of cut lengths shall not exceed those given in Table 4.

TABLE 4 — FLATNESS TOLERANCES, CUT LENGTHS

Ordered Thickness, mm	Ordered Width, mm	Flatness Tolerance, mm
To 1.50 incl.	To 900 incl.	12
	Over 900 to 1422 incl.	18
Over 1.50	To 1422 incl.	12

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 5.

TABLE 5 — THICKNESS TOLERANCES, BASE STEEL

Base Steel Nominal Thickness, mm	Tolerance on Base Steel Nominal Thickness, Over (+) and Under (-), mm	
	2.67	+ .18
1.91	+ .15	- .10
1.52	+ .15	- .10
1.22	+ .15	- .10
0.91	+ .10	- .06
0.76	+ .10	- .06

NOTE: Thickness is measured on uncoated base steel at any point across the width not less than 10 mm from an edge.

8.0 ORDER THICKNESS

- 8.1 Order thickness, selected from Table 6, shall be shown on the purchase order.

TABLE 6 — ORDER THICKNESS

Base Steel Nominal Thickness, mm	Order Thickness, mm					
	ZF75	Z275	Z350	Z450	Z600	Z700
2.67	2.67	2.71	2.72	2.74	2.76	2.77
1.91	1.91	1.95	1.96	1.98	2.00	2.01
1.52	1.52	1.56	1.57	1.59	1.61	1.62
1.22	1.22	1.26	1.27	1.29	1.31	1.32
0.91	0.91	0.95	0.96	0.98	1.00*	1.01*
0.76	0.76	0.80	0.81	0.83*	0.85*	0.86*

NOTE: Thickness increment for zinc-iron alloy coat (ZF75) is not significant. Enquire as to availability of thickness coating combinations which are asterisked.



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