

Pub. No. 40.7-79

Prefinished and Post-Painted Galvanized Sheet Steel for Exterior Building Products

TECHNICAL BULLETIN NO. 7
OCTOBER, 1979



CANADIAN
SHEET STEEL
BUILDING INSTITUTE

HISTORICAL REFERENCE ONLY

PREFACE

One of the precepts of the Members of the CSSBI is the development of, and adherence to, standards which promote safety and good practice.

This Technical Bulletin is intended to assist in the specifying of prefinished and post-painted galvanized sheet steel for exterior building products. It defines the minimum quality and performance standards considered appropriate for exterior exposure of coated sheet in usual commercial, industrial and institutional applications.

Reference is made to eleven currently available paint systems which are capable of meeting the stated quality and performance standards. Other systems may also be available, for which the purchaser should satisfy himself that the standards stated herein, or other appropriate requirements, will be met.

The listed paint systems are not necessarily equivalent in respect of features not covered herein. For requirements outside the scope of this Bulletin, refer to the specifications of the individual paint systems. Or consult CSSBI or a CSSBI Member Company.

REFERENCE PUBLICATIONS

American Society For Testing and Materials (ASTM)

- D523 — Standard Test Method for Specular Gloss.
- D659 — Standard Method of Evaluating Degree of Chalking of Exterior Paints.
- D1729 — Standard Method for Visual Evaluation of Color Differences of Opaque Materials.
- D2244 — Standard Method for Instrumental Evaluation of Color Differences of Opaque Materials.

Canadian Government Specifications Board (CGSB)

- 1-GP-71 — Methods of Testing Paints and Pigments.
- 93-GP-3M — Steel Sheet, Galvanized, Prefinished, Residential.

Canadian Sheet Steel Building Institute (CSSBI)

- 40.6 — Metric Zinc Coated (Galvanized) Sheet Steel for Structural Building Products.

TECHNICAL BULLETIN NO. 7

PREFINISHED AND POST-PAINTED GALVANIZED SHEET STEEL FOR EXTERIOR BUILDING PRODUCTS

1. SCOPE

1.1 These requirements apply to continuously hot dipped galvanized sheet steel used for exterior building products and coated with one of the following paint systems as delivered from a fabricator.

Paint Systems covered by Steel Producer or Coil Coater Specifications

- (a) 5000 Series (1,2)*
- (b) 60 Series (3)
- (c) 10000 Series (1,2)
- (d) 240 Series (3)

Paint Systems Covered by Fabricator Specifications

- (e) 1500 Series (4)
- (f) 10-136 Series (5)
- (g) 200 Series (6)
- (h) Duranar 200 Series (6)
- (i) Polycron C Series (6)
- (j) SPE 750 Series (7)
- (k) Durasil Series (8)

- 1.2 These requirements are intended as quality and performance standards between a user (e.g. owner, architect, contractor) and a fabricator.
- 1.3 These requirements are not intended to apply to farm building applications.
- 1.4 Unless otherwise noted, where reference is made to another publication, the reference shall be to the latest edition or revision approved by the organization issuing the publication.

**Source Code: (1) Dominion Foundries and Steel, Limited (2) The Steel Company of Canada, Limited (3) Metal Koting Continuous Colour Coat Limited (4) Star Steel Ltd. Steelspan (5) Butler Manufacturing Company (Canada) Ltd. (6) Armco Canada Ltd. (7) Behlen-Wickes Company Ltd. (8) Robertson Building Systems Ltd.*

2. BASE MATERIAL

The base material shall be continuously hot dipped galvanized steel with minimum zinc coating designation Z275 as required for exterior exposure in accordance with CSSBI Technical Bulletin No. 6 *Metric Zinc Coated (Galvanized) Sheet Steel for Structural Building Products* (Pub. No. 40.6).

3. DEFINITIONS

3.1 Prefinished

Prefinished refers to material factory-coated with a listed paint system prior to delivery to a fabricator in coil form.

3.2 Post-Painted

Post-painted refers to material factory-coated with a listed paint system after delivery to a fabricator and prior to delivery of the fabricated product to a user.

3.3 Proven Colours

Proven colours are those established as being durable under exterior exposure conditions. (See Clause 6)

3.4 Other Colours

Colours other than proven colours are those whose durability has not been established by exterior exposure and therefore not covered by the exterior durability requirements (Clause 6) of these standards.

4. GENERAL REQUIREMENTS

4.1 Finished Surfaces

A finish coat shall be provided on sheet surfaces exposed to the weather. Unless otherwise specified, unexposed surfaces are not required to be finish coated but may be provided with a surface treatment at the option of the fabricator.

(NOTE: Prefinished (coil coated) material is normally supplied with an organic wash coat on the unexposed (reverse) surface. For additional protection against wet storage stain (white staining) on nestable product, a suitable corrosion inhibitive primer under the organic wash is recommended. Alternatively, material may be finish coated on both sheet surfaces.)

4.2 Finish Coat

A finish coat shall be:

- (a) cured by baking.
- (b) uniform in appearance.
- (c) free of any visible imperfections when examined without magnification in diffused daylight-type lighting at a distance of 76 cm.

4.3 Colour of Finish Coat

Colour of the finish coat shall be uniform and match the colour standard when compared visually by an experienced person under daylight and

horizon type light source in accordance with ASTM D 1729 or CGSB 1-GP-71, Method 12.9. Instrumental colour evaluation in accordance with ASTM D2244 shall be used if contradictory findings come from visual comparison.

5. FINISH COAT QUALIFICATION TESTS

5.1 Thickness

The dry film minimum thickness on a finish coated surface shall be 0.02 mm.

(NOTE: The millimetre is the preferred SI unit of thickness measurement. Where film thickness is expressed in microns, μ or μm , divide by 1000 to convert to millimetres).

5.2 Hardness

The pencil hardness of a finish coat shall be HB minimum. Hardness is specified as the hardest pencil which fails to penetrate the surface. Tests shall be conducted in accordance with CGSB 93-GP-3M using a "Berol Turquoise" pencil.

5.3 Gloss

The specular gloss, when measured on a flat, unformed surface with a Gardner 60 Glossmeter (ASTM D523), shall be 30 ± 5 units unless another gloss range is agreed upon mutually.

5.4 Film Adhesion

Film adhesion shall be determined by the following method:

- (a) On a flat, unformed surface, using a sharp knife or similar instrument, make 11 parallel cuts through the film at approximately 2 mm spacing. Make 11 similar cuts at 90 degrees to and crossing the first set. Across the scored area apply a strip of fresh 25 mm wide pressure-

sensitive No. 600 "Scotch" cellophane tape that has been stored in an air-tight container. Press the tape firmly to assure close contact over the entire scored area.

- (b) Remove the tape immediately by pulling it back upon itself at 180 degrees in one rapid motion.
- (c) There shall be no removal of the film beyond the width of the scored lines when tested in accordance with the foregoing. A visual examination will allow a reasonably accurate estimation of the percentage of finish remaining on the substrate in the test area.

5.5 Film Fracture

After fabrication, no unsightly paint film fracture shall be permitted. Unsightly fracture is considered to be any crack large enough to be seen at a distance of 76 cm in a MacBeth Daylight Booth by an observer with 20/20 vision.

6. EXTERIOR DURABILITY

Exterior durability is evaluated from exterior exposure of flat, unformed test panels. The paint film shall show no checking or loss of adhesion and exhibit only slight chalking (No. 6, ASTM D 659) and slight colour change after one year of exterior exposure in Southern Florida and also in Southern Ontario, at 45 degrees to the horizontal facing south; and shall not exhibit a colour change of more than 7 fade units when measured by any accepted colourimeter designed to produce reflecting readings in the Tristimulus Filter System of X-, Y-, and Z- based on the CIE values of illuminant C.

OBSOLETE
HISTORICAL REFERENCE ONLY

CANADIAN SHEET STEEL BUILDING INSTITUTE
305-201 Consumers Road, Willowdale, Ontario M2J 4G8 (416) 493-8780