

QQ-T-201F
12 November 1986
SUPERSEDING
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FEDERAL SPECIFICATION

TERNEPLATE, FOR ROOFING AND ROOFING PRODUCTS

This specification is approved by the General Service Administration, Federal Supply Service, Washington, D.C. 20406, for the use of all Federal Agencies.

1. SCOPE

1.1 Scope. This specification covers type I carbon steel base metal and type II stainless steel base metal coated with a lead-tin alloy for roofing materials.

1.2 Classification.

1.2.1 Base metal. The terneplate shall be specified according to base metal as follows:

Type I - Carbon steel base
Type II - Stainless steel base

1.2.2 Basis weights or thicknesses.

1.2.2.1 Type I terneplate shall be furnished in the following weights of base metal in pounds per single base box as specified (see 6.3.2):

107 pounds	(48.5352 Kg)
135 pounds	(61.2360 Kg)
155 pounds	(70.3060 Kg)

1.2.2.2 Type II terneplate shall be furnished in the following thicknesses as specified (see 6.2):

0.015 inches	(.3810 mm)
0.018 inches	(.4572 mm)

AMSC N/A

FSC 9515

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QQ-T-201F

1.2.3 Coating weights.

1.2.3.1 Type I terneplate shall be furnished in the following coating weights in pounds per double base box as specified (see 6.2 and 6.3.3):

8 pounds	(3.6288 Kg)
20 pounds	(9.0720 Kg)
40 pounds	(18.1440 Kg)

1.2.3.2 Type II terneplate shall be furnished with a coating weight of 40 pounds per double base box.

1.2.4 Grade. Unless otherwise specified (see 6.2), the terneplate covered by this specification shall be primes including a maximum of 3 percent seconds.

1.2.5 Size. The terneplate covered by this specification shall be furnished in the following sizes, as specified (see 6.2):

12 by 24 inches	(30.480 by 60.960 cm)
12 by 40 inches	(30.480 by 101.6 cm)
14 by 20 inches	(35.56 by 50.8 cm)
20 by 28 inches	(50.80 by 71.12 cm)
Seamless rolls - 14, 20, 24, and 28 inches wide by 100 feet long (35.56, 50.80, 60.96, and 71.12 cm wide by 30.48 metre long), or cut to any shorter cut length.	

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

Federal standards:

FED-STD-66 - Steel: Chemical Composition and Hardenability
FED-STD-123 - Marking for Shipment (Civil Agencies).

Military Standards:

MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-163 - Steel Mill Products Preparation for Shipment and Storage.

(Copies of specifications, standards, handbooks, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

QQ-T-201F

2.2 Other Publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents riot listed in the DODISS shall be the issue of the non-Government documents which is current on the date of the solicitation.

American Society for Testing and Materials (ASTM) Standard:

- A309 - Weight and Composition of Coating on Long Terne Sheet by the Triple-Spot Test
- A623 - General Requirements for Tin Mill Products
- A751 - Methods, Practices, and Definitions for Chemical Analysis of Steel Products

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

Uniform Classification Committee Agent:

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 West Jackson Boulevard, Chicago, IL 60606.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification

(Application for copies should be addressed to the National Classification Board, 1616 P Street, N.W., Washington, DC 20036.)

(Non-Government standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Chemical requirements.

3.1.1 Base metal. Unless otherwise specified in the contract or order (see 6.2), the base metal shall be copper-bearing, low carbon steel (according to FED-STD-66) or 304 stainless steel. Copper content of copper bearing steel shall be not less than 0.20 percent by cast or heat analysis and 0.18 percent by product check or verification analysis. If stainless steel other than 304 is required, type and grade shall be as specified (see 6.2).

QQ-T-201F

3.1.1.1 When specified in the contract or order, the contractor shall furnish an analysis showing the composition of the base metal.

3.1.2 Terne coating. Unless otherwise specified in the contract or order (see 6.2), the terne coating used shall conform to the chemical requirements specified in table I.

TABLE I. Chemical requirements for terne coating.

Tin, minimum, percent	Tin, plus lead, minimum, percent
20.0	99.0

3.1.2.1 When specified in the contract or order (see 6.2), the contractor shall furnish an analysis showing the percentages of the elements designated in table I.

3.2 Bend test requirement. The terneplate shall withstand being bent at room temperature through an angle of 180 degrees flat on itself without flaking of the coating or cracking of the base metal.

3.3 Weight of coating.

3.3.1 The average weight of coating shall be not less than 90 percent of the ordered weight when determined by either the triple spot test or direct reading radiation gages.

3.3.2 The weight of coating on any single plate shall be not less than 70 percent of the ordered weight when determined by either the triple spot test or direct reading radiation gages.

3.4 Lot weight. The weight of a lot of terneplate shall be as calculated from the amounts shown in table II and shall be within the permissible weight tolerances (see 3.3).

TABLE II. Weight of coated plates.

Base weight per single base box (uncoated plates), types and gages	Weight of coated plates		
	8 pound (3.6288 Kg) coating ¹ weight pounds (Kg)	20 pound (9.0720 Kg) coating weight pounds (Kg)	40 pound (18.1440Kg) coating weight pounds (Kg)
107 lb 1C 30 (48.532K9)	107 (48.5352)	113 (51.2568)	123 (55.7928)
135 lb 1X 28 (61.2360K8)	135 (61.2360)	141 (63.9576)	151 (68.4936)

[NOTE: THE REMAINDER OF THIS PAGE COULD NOT BE REPRODUCED ELECTRONICALLY.]

QQ-T-201F

3.5 Dimensional tolerances. Dimensional tolerances on width, length, out of square, and camber shall correspond to those cited in ASTM A623.

3.6 Identification marking. The terneplate shall be legibly marked or tagged with the manufacturers identification, weight, purchasers order number and specification number.

3.7 Workmanship.

3.7.1 Base metal. The base metal shall be free from laminations, blisters, slivers, open seams, pits, ragged edges, holes, turned down corners, and internal or surface defects which will impair the intended use.

3.7.2 Prime plates. Prime plates, in addition to being free from defects listed in 3.7.1, shall be free from bare or imperfectly coated spots, deep scratches, heavy list edges, and other defects readily visible to the unaided eye.

3.7.3 Seconds. Seconds may contain minor imperfections in coating, base metal or other manufacturing defects, such as may occur in good mill practice.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Lot. Unless otherwise specified in the contract or order, a lot shall consist of all material of the same base weight, coating weight, grade, nominal base metal composition, and size submitted for inspection at one time.

4.3 Sampling.

4.3.1 For weight of coating test. One plate from each 50 packages shall be selected for this test. The minimum sample size, however, shall be three samples. Unless otherwise specified in the contract or order (see 6.2), plates rejected during manufacture which are imperfect outside the zones from which specimens are to be taken may be used as sample plates.

QQ-T-201F

4.3.2 For composition ofterne metal. Determination of tin and lead shall be made either on samples of pot metal used in the manufacture of theterneplate or on samples of coating stripped from the plate.

4.3.3 For bend test. The plates selected in accordance with 4.3.1 shall be used as sample plates for the bend test specimens.

4.3.4 For visual and dimensional examination. A representative number of plates shall be inspected for compliance with the visual and dimensional requirements.

4.4 Examination.

4.4.1 Visual. Each sample unit selected in accordance with 4.3.4 shall be visually examined to determine compliance with the requirements for grade (see 3.6) and workmanship (see 3.7).

4.4.2 Dimensional. Each sample unit selected in accordance with 4.3.4 shall be measured to determine compliance with the dimensional requirements (see 3.5) of this specification.

4.4.3 Preparation for shipment. Examination of the packing and marking for shipment shall be made for conformance to the requirements of section 5.

4.5 Tests.

4.5.1 Weight and composition of coating. The weight and composition ofterne coating shall be determined in accordance with ASTM A309. Coating weight may also be determined by direct reading radiation gauge.

4.5.2 Composition of base metal. Chemical analysis shall be conducted in accordance with the applicable methods specified in ASTM A751. Analysis shall be made on the uncoated base metal or on base metal which has been stripped of the coating.

4.5.3 Bend test. One bend test specimen shall be cut from each sample plate (see 4.3.3). The specimen shall be 2 inches (5.08 cm) wide by 6 inches (15.24 cm) long, minimum. The bend test specimen shall be bent at room temperature, flat on itself, and then examined for conformance to 3.2.

4.6 Rejection and retest.

4.6.1 Rejection. Unless otherwise specified (see 6.2) where one or more test specimens fail to meet the requirements of the specification the lot represented by the specimen or specimens shall be subject to rejection.

4.6.2 Retest. When no sampling plan is provided or approved by the procuring agency (see 6.2) and where there is evidence that indicates that the specimen was not representative of the lot of material, and when the detail specification does not otherwise specify, at least two specimens shall be selected to replace each test specimen which failed. All specimens so selected for retest shall meet the requirements of the specification or the lot shall be subject to rejection.

QQ-T-201F

5. PACKAGING

5.1 Preservation. Preservation shall be level A or C as specified (see 6.2).

5.1.1 Level A. Theterneplate shall be preserved in accordance with the level A requirements of MIL-STD-163.

5.1.2 Level C. Theterneplate shall be preserved and packaged in accordance with the supplier's commercial practice.

5.2 Packing. Packing shall be level A or C, as specified (see 6.2).

5.2.1 Level A. Theterneplate shall be packed in accordance with the level A requirements of MIL-STD-163.

5.2.2 Level C. Theterneplate shall be packed in a manner which will insure arrival at destination in satisfactory condition and which will be acceptable to the carrier at lowest rates. Containers and packing shall comply with Uniform Freight Classification rules or National Motor Freight Classification rules.

5.3 Marking.

5.3.1 Civil agencies. Marking for shipment shall be in accordance with FED-STD-123.

5.3.2 Military agencies. Marking for shipment shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Theterneplate covered by this specification is intended for use in roofing and roofing materials.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- a. Title, number, and date of this specification.
- b. Basis weights or thicknesses (see 1.2.2).
- c. Coating weight (see 1.2.3).
- d. Size (see 1.2.5).
- e. Base metal, when other than as specified herein (see 3.1.1).
- f. Composition of terne coating, when other than as specified herein (see 3.1.2).
- g. When chemical analysis shall be furnished (see 3.1.2.1).
- h. When weight of coating samples may not be taken as permitted in 4.3.1.
- i. Level of preservation and packaging, and level of packing required (see 5.1 and 5.2).
- j. Maximum gross weight of container.

6.3 Definition of terms.

QQ-T-201F

6.3.1 Package. A "package" consists of 112 plates.

6.3.2 Single base box. A "single base box" consists of 112 plates, 14 by 20 inches (35.56 by 50.8 cm) (equal to 31,360 square inches (202,322.2 square cm) of plate) or equivalent.

6.3.3 Double base box. A "double base box" consists of 112 plates, 20 by 28 inches (50.80 by 71.12 cm) (equal to 62,720 square inches (404,644.4 square cm) of plate) or equivalent.

6.3.4 Cut lengths to 12 feet (3.6576 metre) and coils to 100 foot (30.58 metre) lengths can be specified.

6.4 The requirements for product identification marking (see 3.6) and for packing and marking for shipment (see 5.2 and 5.3) specified herein apply to direct shipment for Government activities and apply also, where specified, to contracts or orders between the manufacturer and the Government prime contractor.

6.5 Federal specifications do not include all types, classes, grades, etc. of the commodities indicated by the title of the specification, or which are commercially available, but are intended to cover the types, etc. which are suitable for Federal Government requirements.

6.6 Subject term (keyword) listing.

Ternplate
Roofing
Coating
Lead-Tin alloy

MILITARY CUSTODIANS:

Army - MR
Navy - YD
Air Force - 84

Review activities:

DSA - IS

Preparing activity:

Army - MR

CIVIL AGENCIES INTEREST:

GSA-FSS
AFS

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