State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
02110305	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
BUYER 33
304-558-2402

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE

SHIP TO
DIVISION OF HIGHWAYS
DISTRICT TWO

801 MADISON AVENUE
HUNTINGTON, WV
25704 304-528-5650

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
03/02/2011				

BID OPENING DATE: 03/30/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	50	LF		570-70		
	20' GALVANIZED CORRUGTED DECKING FOR BRIDGE					
0002	50	LF		570-70		
	18' GALVANIZED CORRUGTED DECKING FOR BRIDGE					
0003	50	LF		570-70		
	16' GALVANIZED CORRUGTED DECKING FOR BRIDGE					

REQUEST FOR QUOTATION
(RFQ)

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BIDS FOR A CONTRACT TO PROVIDE CORRUGTED DECKING FOR BRIDGE REHABILITATION PER THE FOLLOWING SPECIFICATIONS:

METAL DECK PANELS FOR ASPHALT DECK
12" X 4 1/2" OR 9" X 3"

MUST BE DESIGNED FOR HL-93 (HS 25) LOADING

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.

2. The State may accept or reject in part, or in whole, any bid.

3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required $125 fee.

4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.

5. Payment may only be made after the delivery and acceptance of goods or services.

6. Interest may be paid for late payment in accordance with the ***West Virginia Code***.

7. Vendor preference will be granted upon written request in accordance with the ***West Virginia Code***.

8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.

10. The laws of the State of West Virginia and the ***Legislative Rules*** of the Purchasing Division shall govern the purchasing process.

11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.

12. BANKRUPTCY: In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.

13. HIPAA BUSINESS ASSOCIATE ADDENDUM: The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at **www.state.wv.us/admin/purchase/vrc/hipaa.htm** and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

14. CONFIDENTIALITY: The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf.

15. LICENSING: Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

16. ANTITRUST: In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.

2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.

3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.

4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

State of West Virginia
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2019 Washington Street East
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MUST HAVE 36" OF CLEAR SPAN WIDTH BETWEEN FLANGES

ASTM A1011 AND/OR ASTM A123 PER THE ATTACHED

TECHNICAL QUESTIONS CONCERNING THIS SOLICITATION MUST BE SUBMITTED IN WRITING TO SHERI SLONE IN THE WEST VIRGINIA STATE PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN IN THE BODY OF THIS RFQ, VIA FAX AT 304-558-4115, OR VIA EMAIL AT SHERI.D.SLONE@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS IS 03/21/2011 AT THE CLOSE OF BUSINESS. ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE DEADLINE HAS LAPSED.

EXHIBIT 10

REQUISITION NO.: .....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 .....

NO. 2 .....

NO. 3 .....

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

.....
SIGNATURE

.....
COMPANY

.....
DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE BID.

REV. 09/21/2009

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

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RFQ NUMBER	PAGE
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PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.

PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS

1. EXCEPT WHEN AUTHORIZED BY THE DIRECTOR OF THE PURCHASING DIVISION PURSUANT TO SUBSECTION 2 BELOW, NO CONTRACTOR MAY USE OR SUPPLY STEEL PRODUCTS FOR A STATE CONTRACT PROJECT OTHER THAN THOSE STEEL PRODUCTS MADE IN THE UNITED STATES. AS USED USED IN THIS CONTRACT,

   A. "STATE CONTRACT PROJECT" MEANS ANY ERECTION OR CONSTRUCTION OF, OR ANY ADDITION TO, ALTERATION OF OR OTHER IMPROVEMENT TO ANY BUILDING OR STRUCTURE, INCLUDING, BUT NOT LIMITED TO, ROADS OR HIGHWAYS, OR THE INSTALLATION OF ANY HEATIN OR COOLING OR VENTILATING PLANTS OR OTHER EQUIPMENT, OR THE SUPPLY OF AND MATERIALS FOR SUCH PROJECTS, PURSUANT TO A CONTRACT WITH THE STATE OF WEST VIRGINIA FOR WHICH BIDS WERE SOLICITED ON OR AFTER JUNE 6, 2001.

   B. "STEEL PRODUCTS" MEANS PRODUCTS ROLLED, FORMED, SHAPED, DRAWN, EXTRUDED, FORGED, CAST, FABRICATED OR OTHERWISE SIMILARLY PROCESSED, OR PROCESSED BY A COMBINATION OF TWO OR MORE OF SUCH OPERATIONS, FROM STEEL MADE BY THE OPEN HEARTH, BASIC OXYGEN, ELECTRIC FURNACE,

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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BESSEMER OR OTHER STEEL MAKING PROCESS.

C. "UNITED STATES" MEANS THE UNITED STATES OF AMERICA AND INCLUDES ALL TERRITORY, CONTINENTAL OR INSULAR, SUBJECT TO THE JURISDICTION OF THE UNITED STATES.

2. THE DIRECTOR OF THE PURCHASING DIVISION MAY, IN WRITING, AUTHORIZE THE USE OF FOREIGN STEEL PRODUCTS IF:

A. THE COST FOR EACH CONTRACT ITEM USED DOES NOT EXCEED ONE TENTH OF ONE PERCENT (.1%) OF THE TOTAL CONTRACT COST OR TWO THOUSAND FIVE HUNDRED DOLLARS (2,500.00), WHICHEVER IS GREATER. FOR THE PURPOSES OF THIS SECTION, THE COST IS THE VALUE OF THE STEEL PRODUCT AS DELIVERED TO THE PROJECT OR,

B. THE DIRECTOR OF THE PURCHASING DIVSION DETERMINES THAT SPECIFIED STEEL MATERIALS ARE NOT PRODUCED IN THE UNITED STATES IN SUFFICIENT QUANTITY OR OTHERWISE ARE NOT REASONABLY AVAILABLE TO MEET CONTRACT REQUIREMENTS.

3. A CONTRACTOR WHO USES STEEL PRODUCTS IN VIOLATION OF THIS SECTION MAY BE SUBJECT TO CIVIL PENALTIES PURSUANT TO WV CODE SECTION 5A-3-56.

REV. 10/01/01

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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State of West Virginia
Department of Administration
Purchasing Division
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Request for Quotation

RFQ NUMBER	PAGE
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LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: SHERI SLONE - FILE - 33

RFQ. NO.: 02110305

BID OPENING DATE: 03/30/2011

BID OPENING TIME: 1:30 PM

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:

CONTACT PERSON (PLEASE PRINT CLEARLY):

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
	****** THIS IS THE END OF RFQ 02110305 ****** TOTAL:					

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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Designation: A 123/A 123M – 09

Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products[1]

This standard is issued under the fixed designation A 123/A 123M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This specification covers the requirements for zinc coating (galvanizing) by the hot-dip process on iron and steel products made from rolled pressed and forged shapes, castings, plates, bars, and strips.

1.2 This specification covers both unfabricated products and fabricated products, for example, assembled steel products, structural steel fabrications, large tubes already bent or welded before galvanizing, and wire work fabricated from uncoated steel wire. This specification also covers steel forgings and iron castings incorporated into pieces fabricated before galvanizing or which are too large to be centrifuged (or otherwise handled to remove excess galvanizing bath metal).

NOTE 1—This specification covers those products previously addressed in Specifications A 123-78 and A 386-78.

1.3 This specification does not apply to wire, pipe, tube, or steel sheet which is galvanized on specialized or continuous lines, or to steel less than 22 gage (0.0299 in.) [0.76 mm] thick.

1.4 The galvanizing of hardware items that are to be centrifuged or otherwise handled to remove excess zinc (such as bolts and similar threaded fasteners, castings and rolled, pressed and forged items) shall be in accordance with Specification A 153/A 153M.

1.5 Fabricated reinforcing steel bar assemblies are covered by the present specification. The galvanizing of separate reinforcing steel bars shall be in accordance with Specification A 767/A 767M.

1.6 This specification is applicable to orders in either inch-pound units (as A 123) or SI units (as A 123M). Inch-pound units and SI units are not necessarily exact equivalents. Within the text of this specification and where appropriate, SI units are shown in parentheses. Each system shall be used independently of the other without combining values in any way. In the case of orders in SI units, all testing and inspection shall be done using the metric equivalent of the test or inspection method as appropriate. In the case of orders in SI units, such shall be stated to the galvanizer when the order is placed.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A 47/A 47M Specification for Ferritic Malleable Iron Castings

A 90/A 90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

A 143/A 143M Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement

A 153/A 153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A 384/A 384M Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies

A 385 Practice for Providing High-Quality Zinc Coatings (Hot-Dip)

A 767/A 767M Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement

A 780 Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

A 902 Terminology Relating to Metallic Coated Steel Products

B 6 Specification for Zinc

B 487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section

B 602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings

B 960 Specification for Prime Western Grade-Recycled (PWG-R) Zinc

E 376 Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Examination Methods

[1] This specification is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.13 on Structural Shapes and Hardware Specifications.

Current edition approved May 1, 2009. Published May 2009. Originally approved in 1928. Last previous edition approved in 2008 as A 123/A 123M - 08.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard.**

3. Terminology (See Fig. 1)

3.1 *Definitions*:

3.1.1 The following terms and definitions are specific to this specification. Terminology A 902 contains other terms and definitions relating to metallic-coated steel products.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *average coating thickness, n*—the average of three specimen coating thicknesses.

3.2.2 *black, adj*—denotes the condition of not galvanized or otherwise coated. For purposes of this specification the word "black" does not refer to the color or condition of surface, or to a surface deposit or contamination.

3.2.3 *coating thickness grade, n*—the numerical value from Table 1 at the intersection of a material category and a thickness range.

3.2.4 *gross dross inclusions, n*—the iron/zinc intermetallics present in a galvanized coating in a form other than finely dispersed pimples.

3.2.4.1 *Discussion*—These inclusions would create an exposed steel spot if they were removed from the coating. These

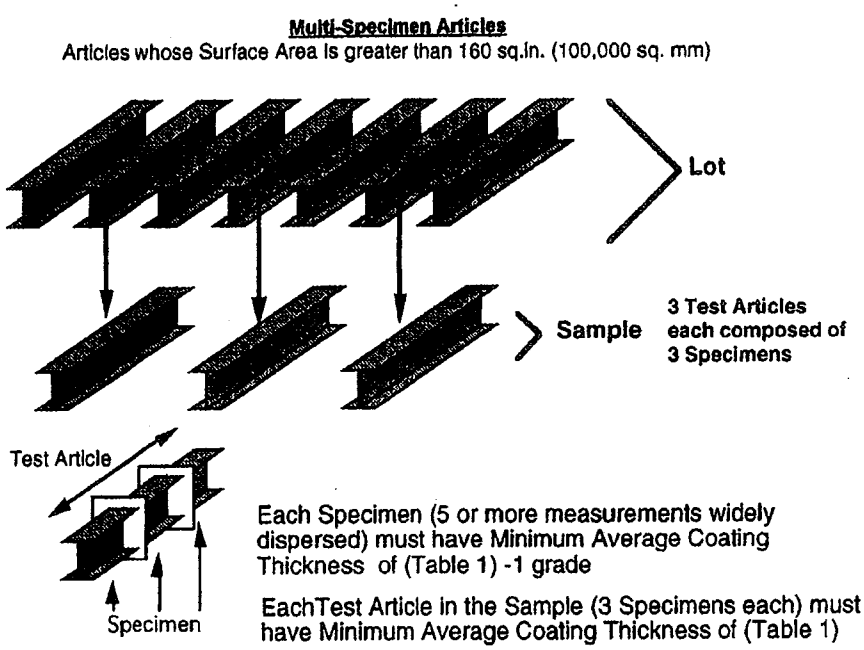


FIG. 1 Single- and Multi-Specimen Articles

TABLE 1 Minimum Average Coating Thickness Grade by Material Category

Material Category	All Specimens Tested Steel Thickness Range (Measured), in. (mm)				
	<1/16 (<1.6)	1/16 to <1/8 (1.6 to <3.2)	1/8 to 3/16 (3.2 to 4.8)	>3/16 to <1/4 (>4.8 to <6.4)	≥1/4 (≥6.4)
Structural Shapes and Plate	45	65	75	85	100
Strip and Bar	45	65	75	85	100
Pipe and Tubing	45	45	75	75	75
Wire	35	50	60	65	80
Reinforcing Bar	...	...	...	...	100

inclusions are raised surfaces and are easily knocked off through contact with lifting straps or chains, tools, fixtures, or other galvanized parts.

3.2.5 *material category*, *n*—the general class or type of material or process of manufacture, or both, that nominally describes a unit of product, or from which a unit of product is made. For example, bar grating belongs to the category "strip," handrail belongs to the category "pipe," etc.

3.2.6 *multi-specimen article*, *n*—a unit of product whose surface area is greater than 160 in.^{2}[100 000 mm^2]. For thickness testing purposes, articles whose surface area is greater than 160 in.^{2} are subdivided into three continuous local sections, nominally equal in surface area, each of which constitutes a specimen. In the case of any such local section containing more than one material category or steel thickness range as delineated in Table 1, that section will contain more than one specimen (see Fig. 1).

3.2.7 *sample*, *n*—a collection of individual units of product from a single lot selected in accordance with Section 7, and intended to represent that lot for acceptance. If a sample is taken as representing the lot for acceptance, the sample shall be taken at random from the lot without regard to the perceived quality or appearance of any individual unit in the lot being sampled. The sample consists of one or more test articles.

3.2.8 *single-specimen article*, *n*—a unit of product whose surface area is equal to or less than 160 in.^{2} [100 000 mm^2] or that is centrifuged or otherwise similarly handled in the galvanizing process to remove excess galvanizing bath metal (free zinc). For thickness testing purposes, the entire surface area of each unit of product constitutes a specimen. In the case of any such article containing more than one material category or steel thickness range as delineated in Table 1, that article will contain more than one specimen (see Fig. 1).

3.2.9 *specimen*, *n*—the surface of an individual test article or a portion of a test article, upon which thickness measurements are to be performed, which is a member of a lot, or a member of a sample representing that lot. For magnetic thickness measurements, specimen excludes any area of the surface which is subject to processes (such as flame cutting, machining, threading, etc.) that can be expected to result in surface conditions not representative of the general surface condition of the test article, or is disqualified by the measurement method. The minimum average coating thickness grade for any specimen shall be one coating grade below that required for the appropriate material category and thickness in Table 1. For a unit of product whose surface area is equal to or less than 160 in.^{2} [100 000 mm^2], the entire surface area of each test article constitutes a specimen. In the case of an article containing more than one material category or steel thickness range as delineated in Table 1, that article will contain more than one specimen, as appropriate (see Fig. 1).

3.2.10 *specimen coating thickness*, *n*—the average thickness from no less than five test measurements on a specimen, when each measurement location is selected to provide the widest dispersion (in all applicable directions) of locations for the steel category of the test article within the confines of the specimen volume.

3.2.11 *test article*, *n*—an individual unit of product that is a member of the sample and that is examined for conformance to a part of this specification.

4. Ordering Information

4.1 Orders for coatings provided under this specification shall include the following:

4.1.1 Quantity (number of pieces to be galvanized) and total weight.

4.1.2 Description (type and size of products) and weight.

4.1.3 ASTM specification designation and year of issue.

4.1.4 Material identification (see 5.1) and surface condition or contamination.

4.1.5 Sampling plan, if different from 7.3.

4.1.6 Special test requirements (see 8.1).

4.1.7 Special requirements (special stacking, heavier coating weight, etc.).

4.1.8 Tagging or piece identification method.

5. Materials and Manufacture

5.1 *Steel or Iron*—The specification, grade, or designation and type and degree of surface contamination of the iron or steel in articles to be galvanized shall be supplied by the purchaser to the hot-dip galvanizer prior to galvanizing.

NOTE 2—The presence in steels and weld metal, in certain percentages, of some elements such as silicon, carbon, and phosphorus tends to accelerate the growth of the zinc-iron alloy layer so that the coating may have a matte finish with little or no outer zinc layer. The galvanizer has only limited control over this condition. The mass, shape, and amount of cold working of the product being galvanized may also affect this condition. Practice A 385 provides guidance on steel selection and discusses the effects of various elements in steel compositions (for example, silicon), that influence coating weight and appearance.

5.2 *Fabrication*—The design and fabrication of the product to be galvanized are the responsibilities of the designer and the fabricator. Practices A 143, A 384, and A 385 provide guidance for steel fabrication for optimum hot dip galvanizing and shall be complied with in both design and fabrication. Consultation

between the designer, fabricator, and galvanizer at appropriate stages in the design and fabrication process will reduce future problems.

5.3 *Castings*—The composition and heat treatment of iron and steel castings shall conform to specifications designated by the purchaser. Some types of castings have been known to show potential problems with predisposition to being embrittled during the normal thermal cycle of hot-dip galvanizing. It is the responsibility of the purchaser to heat treat or otherwise allow for the possibility of such embrittling phenomena. The requirements for malleable iron castings to be galvanized shall be as stated in Specification A 47.

5.4 *Zinc*—The zinc used in the galvanizing bath shall conform to Specification B 6, or Specification B 960, or both. If a zinc alloy is used as the primary feed to the galvanizing bath, then the base material used to make that alloy shall conform to Specification B 6, or Specification B 960, or both.

5.5 *Bath Composition*—The molten metal in the working volume of the galvanizing bath shall contain not less than an average value of 98.0 % zinc by weight.

NOTE 3—The galvanizer may choose to add trace amounts of certain elements (for example, aluminum, nickel, and tin) to the zinc bath to help in the processing of certain reactive steels or to enhance the cosmetic appearance of the finished product. The use of these trace elements is permitted provided that the bulk chemistry of the galvanizing bath is at least 98.0 % zinc by weight. The elements can be added to the galvanizing bath as part of a pre-alloyed zinc feed, or they can be added to the bath by the galvanizer using a master feed alloy.

6. Coating Properties

6.1 *Coating Thickness*—The average thickness of coating for all specimens tested shall conform to the requirements of Table 1 for the categories and thicknesses of the material being galvanized. Minimum average thickness of coating for any individual specimen is one coating grade less than that required in Table 1. Where products consisting of various material thicknesses or categories are galvanized, the coating thickness grades for each thickness range and material category of material shall be as shown in Table 1. In the case of orders in SI units, the values in Table 1, shall be applicable as metric units in micrometres. In the case of orders in inch-pound units, the measured value shall be converted to coating grade units by the use of Table 2. The specification of coating thicknesses heavier than those required by Table 1 shall be subject to mutual agreement between the galvanizer and the purchaser. (Fig. 2 is a graphic representation of the sampling and specimen delineation steps, and Fig. 3 is a graphic representation of the coating thickness inspection steps.)

6.1.1 For articles whose surface area is greater than 160 in.^{2} [100 000 mm^2] (multi-specimen articles), each test article in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1, and each specimen coating thickness grade comprising that overall average for each test article shall average not less than one coating grade below that required in Table 1.

6.1.2 For articles whose surface area is equal to or less than 160 in.^{2} [100 000 mm^2] (single-specimen articles), the average of all test articles in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1, and for each test article, its specimen coating thickness shall be not less than one coating grade below that required in Table 1.

6.1.3 No individual measurement, or cluster of measurements at the same general location, on a test specimen shall be cause for rejection under the coating thickness requirements of this specification provided that when those measurements are averaged with the other dispersed measurements to determine the specimen coating thickness grade for that specimen, the requirements of 6.1.1 or 6.1.2, as appropriate are met.

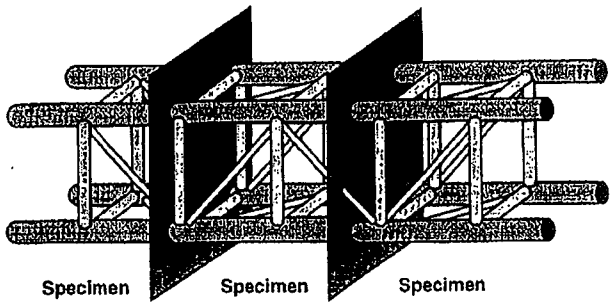
NOTE 4—The coating thickness grades in Table 1 represent the minimum value obtainable with a high level of confidence for the ranges typically found in each material category. While most coating thicknesses will be in excess of those values, some materials in each category may be less reactive (for example, because of chemistry or surface condition) than other materials of the steel category spectrum. Therefore, some articles may have a coating grade at or close to the minimum requirement shown in Table 1. In such cases, the precision and accuracy of the coating thickness measuring technique should be taken into consideration when rejecting such articles for coating thickness below that required by this specification. Purchasers desiring a guarantee of heavier coatings than the minimum thicknesses shown herein should use the special requirements (see 4.1.6) to specify coating thickness grades higher than those shown in Table 1. In addition, the purchaser should anticipate the need for test batches or extra preparation steps, or both, such as blasting before galvanizing or other methods, to attempt to reach the higher requirements with consistency. Some higher-than-standard thicknesses may be impractical or unattainable.

6.2 *Finish*—The coating shall be continuous (except as provided below), and as reasonably smooth and uniform in thickness as the weight, size, shape of the item, and necessary handling of the item during the dipping and draining operations

TABLE 2 Coating Thickness Grade[A]

Coating Grade	mils	oz/ft^2	µm	g/m^2
35	1.4	0.8	35	245
45	1.8	1.0	45	320
50	2.0	1.2	50	355
55	2.2	1.3	55	390
60	2.4	1.4	60	425
65	2.6	1.5	65	460
75	3.0	1.7	75	530
80	3.1	1.9	80	565
85	3.3	2.0	85	600
100	3.9	2.3	100	705

[A] The values in micrometres (µm) are based on the Coating Grade. The other values are based on conversions using the following formulas: mils = µm × 0.03937; oz/ft^2 = µm × 0.02316; g/m^2 = µm × 7.067.



NOTE 1—Each specimen comprises nominally one third of the total surface area of the article. A minimum of five measurements should be made within the volume of each specimen, as widely dispersed within that volume as is practical, so as to represent as much as possible, the general coating thickness within that specimen volume.

FIG. 2 Articles Made of Many Components

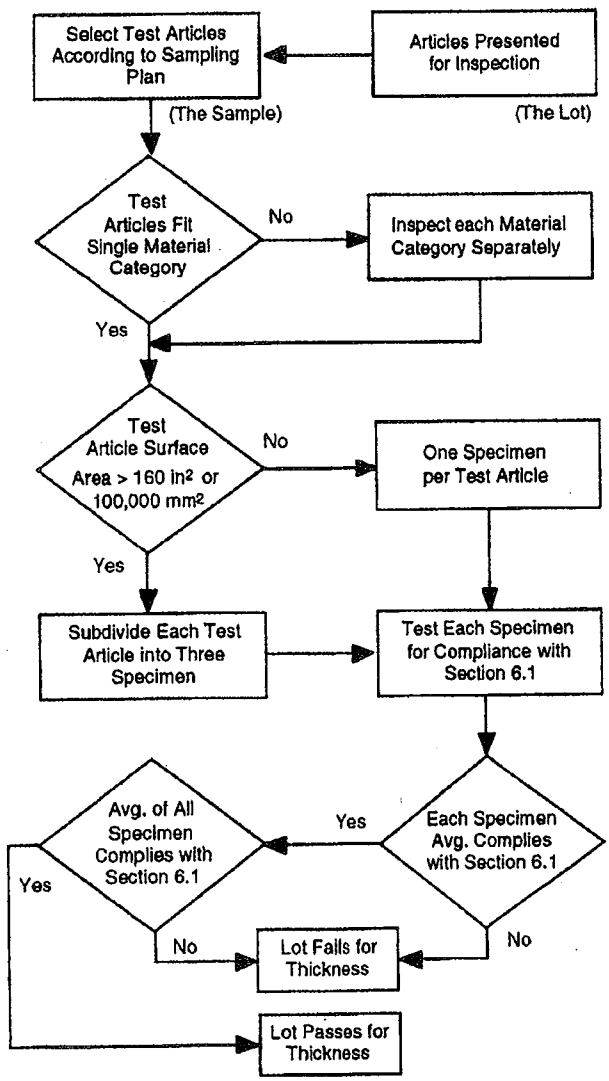


FIG. 3 Coating Thickness Inspection Steps

at the galvanizing kettle will permit. Except for local excess coating thickness which would interfere with the use of the product, or make it dangerous to handle (edge tears or spikes), rejection for nonuniform coating shall be made only for plainly visible excess coating not related to design factors such as holes, joints, or special drainage problems (see Note 6). Since surface smoothness is a relative term, minor roughness that does not interfere with the intended use of the product, or roughness that is related to the as-received (un-galvanized) surface condition, steel chemistry, or steel reactivity to zinc shall not be grounds for rejection (see Note 7). Surface conditions related to deficiencies related to design, detailing, or fabrication as addressed by Practice A 385 shall not be grounds for rejection. The zinc coating on threaded components of articles galvanized under this specification shall conform to that required in Specification A 153/A 153M. Surfaces that remain uncoated after galvanizing shall be renovated in accordance with the methods in Practice A 780 unless directed by the purchaser to leave the uncoated areas untreated for subsequent renovation by the purchaser.

6.2.1 Each area subject to renovation shall be 1 in. [25 mm] or less in its narrowest dimension.

6.2.2 The total area subject to renovation on each article shall be no more than ½ of 1 % of the accessible surface area to be coated on that article, or 36 in.^{2} per short ton [256 cm^2 per metric ton] of piece weight, whichever is less.

NOTE 5—Inaccessible surface areas are those which cannot be reached for appropriate surface preparation and application of repair materials as described in Practice A 780. Such inaccessible areas, for example, would be the internal surfaces of certain tanks, poles, pipes, tubes, and so forth.

6.2.3 The thickness of renovation shall be that required by the thickness grade for the appropriate material category and thickness range in Table 1 in accordance with the requirements of 6.1, except that for renovation using zinc paints, the thickness of renovation shall be 50 % higher than that required by Table 1, but not greater than 4.0 mils.

6.2.4 When areas requiring renovation exceed the criteria previously provided, or are inaccessible for repair, the coating shall be rejected.

NOTE 6—The requirements for the finish of a galvanized product address themselves to a visual type of inspection. They do not address the matter of measured coating thickness variations that can be encountered because of different steels or different thicknesses of a given steel being used in an assembly.

NOTE 7—Items which are prepared for galvanizing by abrasive cleaning will generally develop a thicker coating with a moderately rougher surface.

6.3 *Threaded Components in Assemblies*— The zinc coating on external threads shall not be subjected to a cutting, rolling, or finishing tool operation, unless specifically authorized by the purchaser. Internal threads are not prohibited from being tapped or retapped after galvanizing. Coatings shall conform to the requirements of Specification A 153/A 153M.

6.4 *Appearance*—Upon shipment from the galvanizing facility, galvanized articles shall be free from uncoated areas, blisters, flux deposits, and gross dross inclusions. Lumps, projections, globules, or heavy deposits of zinc which will interfere with the intended use of the material will not be

permitted. Plain holes of ½-in. [12.5-mm] diameter or more shall be clean and reasonably free from excess zinc. Marks in the zinc coating caused by tongs or other items used in handling the article during the galvanizing operation shall not be cause for rejection unless such marks have exposed the base metal and the bare metal areas exceed allowable maximums from 6.2.1 and 6.2.2. The pieces shall be handled so that after galvanizing they will not freeze together on cooling.

NOTE 8—Depending upon product design or material thickness, or both, filming or excess zinc buildup in plain holes of less than ½-in. [12.5-mm] diameter may occur that requires additional work to make the holes usable as intended.

6.5 *Adherence*—The zinc coating shall withstand handling consistent with the nature and thickness of the coating and the normal use of the article, without peeling or flaking.

NOTE 9—Although some material may be formed after galvanizing, in general the zinc coating on the articles covered by this specification is too heavy to permit severe bending without damaging the coating.

7. Sampling

7.1 Sampling of each lot shall be performed for conformance with the requirements of this specification.

7.2 A lot is a unit of production or shipment from which a sample is taken for testing. Unless otherwise agreed upon between the galvanizer and the purchaser, or established within this specification, the lot shall be as follows: For testing at a galvanizer's facility, a lot is one or more articles of the same type and size comprising a single order or a single delivery load, whichever is the smaller, or any number of articles identified as a lot by the galvanizer, when these have been galvanized within a single production shift and in the same bath. For test by the purchaser after delivery, the lot consists of the single order or the single delivery load, whichever is the smaller, unless the lot identity, established in accordance with the above, is maintained and clearly indicated in the shipment by the galvanizer.

7.3 The method of selection and number of test specimens shall be agreed upon between the galvanizer and the purchaser. Otherwise, the test specimens shall be selected at random from each lot. In this case, the minimum number of specimens from each lot shall be as follows:

Number of Pieces in Lot	Number of Specimens
3 or less	all
4 to 500	3
501 to 1 200	5
1 201 to 3 200	8
3 201 to 10 000	13
10 001 and over	20

NOTE 10—Where a number of identical items are to be galvanized, a statistical sampling plan may be desired. Such a plan is contained in Test Method B 602 which addresses sampling procedures for the inspection of electrodeposited metallic coatings and related finishes. If Test Method B 602 is used, the level of sampling shall be agreed upon between the galvanizer and the purchaser at the time the coating order is placed.

7.4 A test specimen which fails to conform to a requirement of this specification shall not be used to determine the conformance to other requirements.

8. Test Methods

8.1 *Test Requirements*—The following tests shall be conducted to ensure that the zinc coating is being furnished in accordance with this specification. The specifying of tests for adhesion and embrittlement shall be subject to mutual agreement between the galvanizer and purchaser. Visual inspection of the coating shall be made for compliance with the requirements.

8.2 *Thickness of Coating Test*—The thickness of coating is determined by one or more of the three methods described as follows.

8.2.1 *Magnetic Thickness Measurements*— The thickness of the coating shall be determined by magnetic thickness gage measurements in accordance with Practice E 376 unless the methods described in 8.2.2, 8.2.3, or 8.2.4 are used. For each specimen (as described in 3.2.9) five or more measurements shall be made at points widely dispersed throughout the volume occupied by the specimen so as to represent as much as practical, the entire surface area of the test specimen. The average of the five or more measurements thus made for each specimen is the specimen coating thickness.

8.2.1.1 For articles whose surface area is greater than 160 in.^{2} [100 000 mm^2] (multi-specimen articles as described in 3.2.6), the average of the three specimen coating thickness grades comprising each test article is the average coating thickness for that test article. A specimen must be evaluated for each steel category and material thickness within the requirements for each specimen of the test article.

8.2.1.2 For articles whose surface area is equal to or less than 160 in.^{2} [100 000 mm^2] (single-specimen articles as described in 3.2.8), the average of all specimen coating thickness grades is the average coating thickness for the sample.

8.2.1.3 In the case of threaded components, the thickness of coating shall be made on a portion of the article that does not include any threads.

8.2.1.4 The use of magnetic measurement methods is appropriate for larger articles, and is appropriate for smaller articles when there is sufficient flat surface area for the probe tip to sit flat on the surface using Practice E 376.

8.2.2 *Stripping Method*—The average weight of coating shall be determined by stripping a test article, a specimen removed from a test article, or group of test articles in the case of very small items such as nails, etc., in accordance with Test Method A 90/A 90M unless the methods described in 8.2.1, 8.2.3, or 8.2.4 are used. The weight of coating per unit area thus determined is converted to equivalent coating thickness values in accordance with Table 2 (rounding up or down as appropriate). The thickness of coating thus obtained is the test article coating thickness, or in the case of a specimen removed from a test article, is the specimen average coating thickness.

8.2.2.1 The stripping method is a destructive test and is appropriate for single specimen articles, but is not practical for multi-specimen articles.

8.2.3 *Weighing Before and After Galvanizing*—The average weight of coating shall be determined by weighing articles before and after galvanizing, subtracting the first weight from the second and dividing the result by the surface area unless the

methods described in 8.2.1, 8.2.2, or 8.2.4 are used. The first weight shall be determined after pickling and drying and the second after cooling to ambient temperature. The weight of coating per unit area thus determined is converted to equivalent coating thickness values according to Table 2 (rounding up or down as appropriate). The thickness of coating thus obtained is the test article coating thickness.

8.2.3.1 The weighing before and after method is appropriate for single-specimen articles, but is not practical for multi-specimen articles.

NOTE 11—Both the stripping method and the weighing before and after method do not take into account the weight of iron reacted from the article that is incorporated into the coating. Thus, the methods may underestimate coating weight (and therefore the calculated thickness) by up to 10 %. The accuracy of both methods will be influenced by the accuracy to which the surface area of the articles tested can be determined.

8.2.4 *Microscopy*—The thickness of coating shall be determined by cross-sectional and optical measurement in accordance with Test Method B 487 unless the methods described in 8.2.1, 8.2.2, or 8.2.3 are used. The thickness thus determined is a point value. No less than five such measurements shall be made at locations on the test article which are as widely dispersed as practical, so as to be representative of the whole surface of the test article. The average of no less than five such measurements is the specimen coating thickness.

8.2.4.1 The microscopy method is a destructive test and is appropriate for single-specimen articles, but is not practical for multi-specimen articles.

8.2.5 *Referee Method*—In the event of a dispute over thickness of coating measurements, the dispute shall be resolved as follows:

8.2.5.1 For multi-specimen articles, a new sample shall be taken randomly from the lot of material, which has twice the number of test articles as the sample which failed to conform to this specification. If the lot size is such that the sample size cannot be doubled, then the sample size shall be as previous, but the number of widely dispersed sites at which measurements were made shall be doubled, and these sites will constitute the new sample. This new sample shall be measured using magnetic thickness gages which have been calibrated for accuracy against reference material thickness standards. If the lot is found to be nonconforming by the new sample, the galvanizer has the right to sort the lot for conforming articles by individual test, to re-galvanize non-conforming articles, or to renovate the nonconforming articles in accordance with 6.2.

8.2.5.2 For single-specimen articles, a new sample shall be taken randomly from the lot of material, which has twice the number of test articles as the sample which failed to conform to this specification. The test method for the new sample shall be selected by mutual agreement between the purchaser and galvanizer. If the lot is found to be nonconforming by the new sample, the galvanizer has the right to sort the lot for conforming articles by individual test, to re-galvanize non-conforming articles, or to renovate the nonconforming articles in accordance with 6.2.

8.3 *Adhesion*—Determine adhesion of the zinc coating to the surface of the base metal by cutting or prying with the point of a stout knife, applied with considerable pressure in a manner tending to remove a portion of the coating. The adhesion shall be considered inadequate if the coating flakes off in the form of a layer of the coating so as to expose the base metal in advance of the knife point. Do not use testing carried out at edges or corners (points of lowest coating adhesion) to determine adhesion of the coating. Likewise, do not use removal of small particles of the coating by paring or whittling to determine failure.

8.4 *Embrittlement*—Test for embrittlement shall be made in accordance with Practice A 143. These tests shall not be required unless strong evidence of embrittlement is present.

9. Inspection, Rejection, and Retest

9.1 *Inspection by the Galvanizer*—It is the responsibility of the galvanizer to ensure compliance with this specification. This shall be achieved by an in-plant inspection program designed to maintain the coating thickness, finish, and appearance within the requirements of this specification unless the inspection is performed in accordance with 9.2.

9.2 *Inspection By the Purchaser*—The purchaser shall accept or reject material by inspection either through the galvanizer's inspector, the purchaser's inspector, or an independent inspector. The inspector representing the purchaser shall have access at all times to those areas of the galvanizer's facility which concern the application of the zinc coating to the material ordered while work on the contract of the purchaser is being performed. The galvanizer shall afford the inspector all reasonable facilities to satisfy him that the zinc coating is being furnished in accordance with this specification.

9.3 *Location*—The material shall be inspected at the galvanizer's plant prior to shipment. However, by agreement the purchaser is not prohibited from making tests which govern the acceptance or rejection of the materials in his own laboratory or elsewhere.

9.4 *Reinspection*—When inspection of materials to determine conformity with the visual requirements of 6.2 warrants rejection of a lot, the galvanizer is not prohibited from sorting the lot and submit it once again for acceptance after he has removed any nonconforming articles and replaced them with conforming articles.

9.5 The sampling plan that was used when the lot was first inspected shall be used for resampling of a sorted lot. By mutual agreement, the galvanizer is not prohibited from submitting the lot remaining after sorting and removing nonconforming articles without replacement of the nonconforming articles. In such case, the now-smaller lot shall be treated as a new lot for purposes of inspection and acceptance.

9.6 Materials that have been rejected for reasons other than embrittlement are not prohibited from being stripped and regalvanized and again submitted for inspection and test at which time they shall conform to the requirements of this specification.

10. Certification

10.1 When specified in the purchase order or contract, the purchaser shall be furnished certification that samples representing each lot have been either tested or inspected as directed by this specification and the requirements have been met.

When specified in the purchase order or contract, a report of the test results shall be furnished.

11. Keywords

11.1 coatings—zinc; galvanized coatings; steel products—metallic coated; zinc coatings—steel products

SUMMARY OF CHANGES

Committee A05 has identified the location of selected changes to this standard since the last issue (A 123/A 123M - 08) that may impact the use of this standard. (May 1, 2009)

(*1*) Revised 5.4 to add new zinc standard B 960.

Designation: A1011/A1011M – 10

Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength[1]

This standard is issued under the fixed designation A1011/A1011M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification covers hot-rolled, carbon, structural, high-strength low-alloy, high-strength low-alloy with improved formability, and ultra-high strength steel sheet and strip, in coils and cut lengths.

1.2 Hot rolled steel sheet and strip is available in the designations as listed in 4.1.

1.3 This specification is not applicable to the steel covered by Specification A635/A635M.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A568/A568M Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

A569/A569M Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial[3]

A622/A622M Specification for Drawing Steel (DS), Sheet and Strip, Carbon, Hot-Rolled[3]

A635/A635M Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, General Requirements for

A749/A749M Specification for Steel, Strip, Carbon and High-Strength, Low-Alloy, Hot-Rolled, General Requirements for

A941 Terminology Relating to Steel, Stainless Steel, Related Alloys, and Ferroalloys

E18 Test Methods for Rockwell Hardness of Metallic Materials

3. Terminology

3.1 *Definitions*—For definitions of other terms used in this specification refer to Terminology A941.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *aging*—loss of ductility with an increase in hardness, yield strength, and tensile strength that occurs when steel, which has been slightly cold worked (such as by temper rolling) is stored for some time.

3.2.1.1 *Discussion*—Aging also increases the tendency toward stretcher strains and fluting.

3.2.2 *inclusion control, n*—the process of reducing the volume fraction of inclusions or modifying the shape of inclusions to improve formability, weldability, and machinability.

3.2.2.1 *Discussion*—Inclusions, especially those elongated during the rolling process, create the conditions for initiating or propagating cracks when the material is stretched or bent during the manufacture of a part (or both). The adverse effects of inclusions are minimized by reducing the content of inclusions in the steel or by altering the shape of inclusions through the use of additions during the steelmaking process that change the elongated shape of the inclusions to less harmful small, well dispersed globular inclusions (or both).

3.2.3 *stabilization*—addition of one or more nitride or carbide forming elements, or both, such as titanium and columbium, to control the level of the interstitial elements carbon and nitrogen in the steel.

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.19 on Steel Sheet and Strip.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

*A Summary of Changes section appears at the end of this standard.

3.2.3.1 *Discussion*—Stabilization improves formability and increases resistance to aging.

3.2.4 *vacuum degassing*—process of refining liquid steel in which the liquid is exposed to a vacuum as part of a special technique for removing impurities or for decarburizing the steel.

4. Classification

4.1 Hot-rolled steel sheet and steel strip is available in the following designations:

4.1.1 Commercial Steel (CS Types A, B, C, and D),

4.1.2 Drawing Steel (DS Types A and B),

NOTE 1—CS Type B and DS Type B describe the most common product previously included, respectively, in Specifications A569/A569M and A622/A622M.

4.1.3 Structural Steel (SS grades 30[205], 33[230], 36[250] Types 1 and 2, 40[275], 45[310], 50[340], 55[380], 60[410], 70[480], and 80[550]),

4.1.4 High-Strength Low-Alloy Steel (HSLAS, classes 1 and 2, in grades 45[310], 50[340], 55[380], 60[410], 65[450], and 70[480].

4.1.5 High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F grades 50[340], 60[410], 70[480], and 80[550]).

4.1.5.1 HSLAS-F steel has improved formability when compared to HSLAS. The steel is fully deoxidized, made to a fine grain practice, and includes microalloying elements such as columbium, vanadium, and zirconium. The steel shall be treated to achieve inclusion control.

4.1.6 Ultra-High Strength (UHSS Types 1 and 2, in Grades 90 [620] and 100 [690]).

4.1.6.1 UHSS steel has increased strength compared with HSLAS-F. The steel is killed and made to a fine ferritic grain practice, and includes microalloying elements such as columbium (niobium), titanium, vanadium, molybdenum, and so forth. The steel shall be treated to achieve inclusion control. The material is intended for miscellaneous applications where higher strength, savings in weight, and weldability are important. Atmospheric corrosion resistance of these steels is equivalent to plain carbon steels. With copper specified, the atmospheric corrosion resistance is somewhat enhanced.

4.1.7 When required for HSLAS, HSLAS-F, and UHSS steels, limitations on the use of one or more of the microalloy elements shall be specified on the order.

5. Ordering Information

5.1 It is the purchaser's responsibility to specify in the purchase order all ordering information necessary to describe the required material. Examples of such information include, but are not limited to, the following:

5.1.1 ASTM specification number and year of issue,

5.1.2 Name of material and designation (hot-rolled steel sheet) (include grade, type and class, as appropriate, for CS, DS, SS, HSLAS, HSLAS-F, and UHSS) (see 4.1),

5.1.2.1 When a type is not specified for CS or DS, Type B will be furnished (see 4.1),

5.1.2.2 When a class is not specified for HSLAS, Class 1 will be furnished (see 4.1),

5.1.2.3 When a type is not specified for SS Grade 36, Type 1 will be furnished (see 4.1),

5.1.2.4 When a type is not specified for UHSS, Type 1 shall be furnished (see 4.1).

5.1.3 Finish (see 9.1)

5.1.4 Type of edge (see 9.3),

5.1.5 Oiled or not oiled, as required (see 9.2),

5.1.6 Dimensions (thickness, width, and whether cut lengths or coils),

NOTE 2—Not all producers are capable of meeting all the limitations of the thickness tolerance tables in Specifications A568/A568M and A749/A749M. The purchaser should contact the producer prior to placing an order.

5.1.7 Coil size (inside diameter, outside diameter, and maximum weight),

5.1.8 Copper bearing steel (if required),

5.1.9 Quantity,

5.1.10 Application (part identification and description),

5.1.11 A report of heat analysis will be supplied, if requested, for CS and DS. For materials with required mechanical properties, SS, HSLAS, HSLAS-F, and UHSS, a report is required of heat analysis and mechanical properties as determined by the tension test, and

5.1.12 Special requirements (if any).

5.1.12.1 When the purchaser requires thickness tolerances for ⅜ in. [10 mm] minimum edge distance (see Supplementary Requirement in Specification A568/A568M), this requirement shall be specified in the purchase order or contract.

NOTE 3—A typical ordering description is as follows: ASTM A1011-XX, hot rolled steel sheet, CS Type A, pickled and oiled, cut edge, 0.075 by 36 by 96 in., 100 000 lb, for part no. 6310, for shelf bracket.
or:
ASTM A1011M-XX, hot rolled steel sheet, CS Type B, pickled and oiled, cut edge, 3.7 by 117 mm by coil, ID 600 mm, OD 1500 mm, max weight 10 000 kg, 50 000 kg, for upper control arm.

6. General Requirements for Delivery

6.1 Material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A568/A568M for sheets and Specification A749/A749M for strip, unless otherwise provided for herein.

7. Chemical Composition

7.1 The heat analysis of the steel shall conform to the chemical composition requirements of the appropriate designation shown in Table 1 for CS and DS and Table 2 for SS, HSLAS, HSLAS-F, and UHSS.

7.2 Each of the elements listed in Tables 1 and 2 shall be included in the report of the heat analysis. When the amount of copper, nickel, chromium, or molybdenum is less than 0.02 %, report the analysis as <0.02 % or the actual determined value. When the amount of vanadium, columbium, or titanium is less than 0.008 %, report the analysis as <0.008 % or the actual determined value. When the amount of boron is less than 0.0005 %, report the analysis as <0.0005 % or the actual determined value.

7.3 Sheet steel grades defined by this specification are suitable for welding if appropriate welding conditions are selected. For certain welding processes, if more restrictive

TABLE 1 Chemical Composition[A]
For Hot Rolled Steel Sheet and Strip Designations CS and DS

	Composition, % Heat Analysis Element maximum unless otherwise shown														
	C	Mn	P	S	Al	Si	Cu	Ni	Cr[B]	Mo	V	Cb	Ti[C]	N	B
CS Type A[D,E,F,G]	0.10	0.60	0.030	0.035	...	...	0.20[H]	0.20	0.15	0.06	0.008	0.008	0.025	...	...
CS Type B[F]	0.02 to 0.15	0.60	0.030	0.035	...	...	0.20[H]	0.20	0.15	0.06	0.008	0.008	0.025	...	...
CS Type C[D,E,F,G]	0.08	0.60	0.10	0.035	...	...	0.20[H]	0.20	0.15	0.06	0.008	0.008	0.025	...	...
CS Type D[F]	0.10	0.70	0.030	0.035	...	...	0.20[H]	0.20	0.15	0.06	0.008	0.008	0.008	...	...
DS Type A[D,E,G]	0.08	0.50	0.020	0.030	0.01 min	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...	...
DS Type B	0.02 to 0.08	0.50	0.020	0.030	0.01 min	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...	...

[A] Where an ellipsis (. . .) appears in the table, there is no specified limit, but the analysis shall be reported.
[B] Chromium is permitted, at the producer's option, to 0.25 % maximum when the carbon content is less than or equal to 0.05 %.
[C] For steels containing 0.02 % carbon or more, titanium is permitted at the producer's option, to the lesser of 3.4N + 1.5S or 0.025 %.
[D] Specify Type B to avoid carbon levels below 0.02 %.
[E] For carbon levels less than or equal to 0.02 %, it is permissible to use vanadium, columbium, or titanium, or combinations thereof, as stabilizing elements at the producer's option. In such case, the limits for these elements are 0.10 % for vanadium or columbium and 0.15 % for titanium.
[F] When an aluminum deoxidized steel is required, it is permissible to order a minimum of 0.01 % total aluminum.
[G] It is permissible to furnish as a vacuum degassed or chemically stabilized steel, or both, at producer's option.
[H] When copper steel is specified, the copper limit is a minimum requirement. When copper steel is not specified, the copper limit is a maximum requirement.

composition limits are desirable, they shall be specified at the time of inquiry and confirmed at the time of ordering.

8. Mechanical Properties

8.1 *CS and DS*:

8.1.1 Typical, nonmandatory mechanical properties for CS and DS are found in Table 3.

8.1.2 The material shall be capable of being bent at room temperature in any direction through 180° flat on itself without cracking on the outside of the bent portion (see the section on bend test in Test Methods and Definitions A370). The bend test is not a requirement of delivery. However, if testing is performed by the purchaser, material not conforming to the requirement shall be subject to rejection.

8.2 *SS, HSLAS, HSLAS-F, and UHSS*:

8.2.1 The available grades and corresponding mechanical properties for SS, HSLAS, HSLAS-F, and UHSS are shown in Table 4.

8.2.2 *Tension Tests*:

8.2.2.1 *Requirements*—Material as represented by the test specimen shall conform to the mechanical property requirements specified in Table 4. These requirements do not apply to the uncropped ends of unprocessed coils.

8.2.2.2 *Number of Tests*—Two tension tests shall be made from each heat or from each 50 tons [45 000 kg]. When the amount of finished material from a heat is less than 50 tons [45 000 kg], one tension test shall be made. When material rolled from one heat differs 0.050 in. [1.27 mm] or more in thickness, one tension test shall be made from the thickest and thinnest material regardless of the weight represented.

8.2.2.3 Tension test specimens shall be taken at a point immediately adjacent to the material to be qualified.

8.2.2.4 Tension test specimens shall be taken from the full thickness of the sheet as-rolled.

8.2.2.5 Tension test specimens shall be taken from a location approximately halfway between the center of sheet and the edge of the material as-rolled.

8.2.2.6 Tension test specimens shall be taken with the lengthwise axis of the test specimen parallel to the rolling direction (longitudinal test).

8.2.2.7 *Test Method*—Yield strength shall be determined by either the 0.2 % offset method or the 0.5 % extension under load method unless otherwise specified.

8.2.3 *Bending Properties*:

8.2.3.1 The suggested minimum inside radii for cold bending are listed in Appendix X1 and is discussed in more detail in Specifications A568/A568M (6.6) and A749/A749M (7.6). Where a tighter bend radius is required, where curved or offset bends are involved, or where stretching or drawing are also a consideration, the producer shall be consulted.

9. Finish and Appearance

9.1 *Surface Finish*:

9.1.1 Unless otherwise specified, the material shall be furnished as rolled, that is, without removing the hot-rolled oxide or scale.

9.1.2 When required, it is permissible to specify that the material be pickled or blast cleaned (descaled).

9.2 *Oiling*:

9.2.1 Unless otherwise specified, as-rolled material shall be furnished not oiled (that is, dry), and pickled or blast cleaned material shall be furnished oiled.

9.3 *Edges*:

9.3.1 Steel sheet is available with mill edge or cut edge.

9.3.2 Steel strip is available with mill edge or cut edge.

10. Retests and Disposition of Non-Conforming Material

10.1 Retests, conducted in accordance with the requirements of Section 11.1 of Specification A568/A568M, are permitted when an unsatisfactorily test result is suspected to be the consequence of the test method procedure.

10.2 Disposition of non-conforming material shall be subject to the requirements of Section 11.2 of Specification A568/A568M.

11. Certification

11.1 A report of heat analysis shall be supplied, if requested, for CS and DS steels. For material with required mechanical properties, SS, HSLAS, HSLAS-F, and UHSS a report is required of heat analysis and mechanical properties as determined by the tension test.

TABLE 2 Chemical Composition[A]
For Hot Rolled Steel Sheet and Strip Designations SS, HSLAS, HSLAS-F, and UHSS

Designation	% Heat Analysis, Element Maximum unless otherwise shown													
	C	Mn	P	S	Al	Si	Cu[B]	Ni	Cr	Mo	V	Cb	Ti	N
SS:[C]														
Grade 30 [205]	0.25	0.90	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 33 [230]	0.25	0.90	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 36 [250] Type 1	0.25	0.90	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 36 [250] Type 2[D]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 40 [275]	0.25	0.90	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 45 [310] Type 1[D]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 45 [310] Type 2	0.02–0.08	0.30–1.00	0.030–0.070	0.025	0.02–0.08	0.60	0.20	0.20	0.15	0.06	0.008	0.008	0.008	0.010–0.030
Grade 50 [340][D]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 55 [380][D]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 60 [410]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 70 [480]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
Grade 80 [550]	0.25	1.35	0.035	0.04	...	...	0.20	0.20	0.15	0.06	0.008	0.008	0.025	...
HSLAS:[E]														
Grade 45 [310] Class 1[D]	0.22	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 45 [310] Class 2	0.15	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 50 [340] Class 1[D]	0.23	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 50 [340] Class 2	0.15	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 55 [380] Class 1[D]	0.25	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 55 [380] Class 2	0.15	1.35	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 60 [410] Class 1	0.26	1.50	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 60 [410] Class 2	0.15	1.50	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	...
Grade 65 [450] Class 1	0.26	1.50	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	[F]
Grade 65 [450] Class 2	0.15	1.50	0.04	0.04	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	[F]
Grade 70 [480] Class 1	0.26	1.65	0.04	0.04	...	...	0.20	0.20	0.15	0.16	0.005 min	0.005 min	0.005 min	[F]
Grade 70 [480] Class 2	0.15	1.65	0.04	0.04	...	...	0.20	0.20	0.15	0.16	0.005 min	0.005 min	0.005 min	[F]
HSLAS-F:[E]														
Grade 50 [340] and 60 [410]	0.15	1.65	0.020	0.025	...	...	0.20	0.20	0.15	0.06	0.005 min	0.005 min	0.005 min	[F]
Grade 70 [480] and 80 [550]	0.15	1.65	0.020	0.025	...	...	0.20	0.20	0.15	0.16	0.005 min	0.005 min	0.005 min	[F]
UHSS:[E]														
Grade 90 [620] and 100 [690] Type 1	0.15	2.00	0.020	0.025	...	...	0.20	0.20	0.15	0.40	0.005 min	0.005 min	0.005 min	[F]
Grade 90 [620] and 100 [690] Type 2	0.15	2.00	0.020	0.025	...	...	0.60	0.50	0.30	0.40	0.005 min	0.005 min	0.005 min	[F]

[A] Where an ellipsis (. . .) appears in the table, there is no requirement but the analysis shall be reported.
[B] When copper is specified, a minimum of 0.20 % is required. When copper steel is not specified, the copper limit is a maximum requirement.
[C] Titanium is permitted for SS designations, at the producer's option, to the lesser of 3.4N + 1.5S or 0.025 %. This does not apply to Grade 45 [310] Type 2.
[D] For each reduction of 0.01 % below the specified carbon maximum, an increase of 0.06 % manganese above the specified maximum will be permitted up to a maximum of 1.50 % .
[E] HSLAS, HSLAS-F, and UHSS steels contain the strengthening elements columbium (niobium), vanadium, titanium, and molybdenum added singly or in combination. The minimum requirements only apply to the microalloy elements selected for strengthening of the steel.
[F] The purchaser has the option of restricting the nitrogen content. It should be noted that, depending on the microalloying scheme (for example, use of vanadium) of the producer, nitrogen may be a deliberate addition. Consideration should be made for the use of nitrogen binding elements (for example, vanadium, titanium).

11.2 The report shall include the purchase order number; the ASTM designation number and year date; product designation; grade; type or class, as applicable; the heat number; and as required, heat analysis and mechanical properties as indicated by the tension test.

11.3 A signature is not required on the test report. However, the document shall clearly identify the organization submitting the report. Notwithstanding the absence of a signature, the organization submitting the report is responsible for the content of the report.

TABLE 3 Typical Ranges of Mechanical Properties[A] (Nonmandatory)[B] For Hot-Rolled Steel Sheet and Strip Designations CS and DS

Designation	Yield Strength[C]		Elongation in 2 in. [50 mm]%[C]
	ksi	MPa	
CS Types A, B, C, and D	30 to 50	[205 to 340]	≥25
DS Types A and B	30 to 45	[205 to 310]	≥28

[A] The yield strength tends to increase and the elongation tends to decrease as the sheet thickness decreases. These properties represent those typical of material in the thickness range of 0.100 to 0.150 in. [2.5 to 3.5 mm] for CS Types A, B, and DS Types A and B and in the thickness ranges of 0.060 to 0.075 in. [1.5 to 1.9 mm] for CS Type D.

[B] The typical mechanical property values presented here are nonmandatory. They are provided to assist the purchaser in specifying a suitable steel for a given application. Values outside these ranges are to be expected.

[C] Yield strength and elongation are measured in the longitudinal direction in accordance with Test Methods and Definitions A370.

11.4 A Material Test Report, Certificate of Inspection, or similar document printed from or used in electronic form from an electronic data interchange (EDI) transmission shall be regarded as having the same validity as a counterpart printed in the certifier's facility. The content of the EDI transmitted document must meet the requirements of the invoked ASTM standard and the purchaser and the supplier. Notwithstanding the absence of a signature, the organization submitting the EDI transmission is responsible for the content of the report.

12. Product Marking

12.1 In addition to the requirements of Specification A568/A568M for sheet and Specification A749/A749M for strip, each lift or coil shall be marked with the designation shown on the order {CS (Type A, B, or C), DS (Type A or B), SS (Grade and for SS36, Type), HSLAS (Grade and Class), HSLAS-F (Grade), or UHSS (Type and Grade)}. The designation shall be legibly stenciled on the top of each lift or shown on a tag attached to each coil or shipping unit.

13. Keywords

13.1 carbon steel sheet; carbon steel strip; commercial steel; drawing steel; high strength-low alloy steel; high strength-low alloy steel with improved formability; hot-rolled steel sheet; hot-rolled steel strip; steel sheet; steel strip; structural steel; ultra-high strength steel

TABLE 4 Mechanical Property Requirements[A]
For Hot Rolled Steel Sheet and Strip Designations SS, HSLAS, HSLAS-F, and UHSS

Designation	Yield Strength	Tensile Strength[B]	Elongation in 2 in. [50 mm] min, % for Thicknesses:			Elongation in 8 in. [200 mm], % for Thickness:
	ksi [MPa] min	ksi [MPa] min or range	Under 0.230 [6.0 mm] to 0.097 [2.5 mm]	Under 0.097 [2.5 mm] to 0.064 [1.6 mm]	Under 0.064 [1.6 mm] to 0.025 [0.65 mm]	Under 0.230 [6.0 mm]
SS:						
Grade 30 [205]	30 [205]	49 [340]	25	24	21	19
Grade 33 [230]	33 [230]	52 [360]	23	22	18	18
Grade 36 [250] Type 1	36 [250]	53 [365]	22	21	17	17
Grade 36 [250] Type 2	36 [250]	58-80 [400-550]	21	20	16	16
Grade 40 [275]	40 [275]	55 [380]	21	20	15	16
Grade 45 [310] Type 1	45 [310]	60 [410]	19	18	13	14
Grade 45 [310] Type 2	45–60 [310–410]	60 [410]	20	19	14	15
Grade 50 [340]	50 [340]	65 [450]	17	16	11	12
Grade 55 [380]	55 [380]	70 [480]	15	14	9	10
Grade 60 [410]	60 [410]	75 [520]	14	13	8	9
Grade 70 [480]	70 [480]	85 [585]	13	12	7	8
Grade 80 [550]	80 [550]	95 [620]	12	11	6	7
HSLAS:			Over 0.097 in. [2.5 mm]	Up to 0.097 [2.5 mm]		...
Grade 45 [310] Class 1	45 [310]	60 [410]	25	23		...
Grade 45 [310] Class 2	45 [310]	55 [380]	25	23		...
Grade 50 [340] Class 1	50 [340]	65 [450]	22	20		...
Grade 50 [340] Class 2	50 [340]	60 [410]	22	20		...
Grade 55 [380] Class 1	55 [380]	70 [480]	20	18		...
Grade 55 [380] Class 2	55 [380]	65 [450]	20	18		...
Grade 60 [410] Class 1	60 [410]	75 [520]	18	16		...
Grade 60 [410] Class 2	60 [410]	70 [480]	18	16		...
Grade 65 [450] Class 1	65 [450]	80 [550]	16	14		...
Grade 65 [450] Class 2	65 [450]	75 [520]	16	14		...
Grade 70 [480] Class 1	70 [480]	85 [585]	14	12		...
Grade 70 [480] Class 2	70 [480]	80 [550]	14	12		...
HSLAS-F:						
Grade 50 [340]	50 [340]	60 [410]	24	22		...
Grade 60 [410]	60 [410]	70 [480]	22	20		...
Grade 70 [480]	70 [480]	80 [550]	20	18		...
Grade 80 [550]	80 [550]	90 [620]	18	16		...
UHSS:						
Grade 90 [620] Types 1 and 2	90 [620]	100 [690]	16	14		...
Grade 100 [690] Types 1 and 2	100 [690]	110 [760]	14	12		...

[A] For coil products, testing by the producer is limited to the end of the coil. Mechanical properties throughout the coil shall comply with the minimum values specified.
[B] A minimum and maximum tensile strength has been specified for SS36 Type 2.

APPENDIXES

(Nonmandatory Information)

X1. BENDING PROPERTIES

TABLE X1.1 Suggested Minimum Inside Radius for Cold Bending

NOTE 1—(t) Equals a radius equivalent to the steel thickness.
NOTE 2—The suggested radius should be used as a minimum for 90° bends in actual shop practice.
NOTE 3—Material which does not perform satisfactorily, when fabricated in accordance with the above requirements, may be subject to rejection pending negotiation with the steel supplier.

Designation	Grade	Minimum Inside Radius for Cold Bending	
Structural Steel	30[205]	1 t	
	33[230]	1 t	
	36[250] Type 1	1½ t	
	36[250] Type 2	2 t	
	40[275]	2 t	
	45[310] Type 1	2 t	
	45[310] Type 2	2 t	
	50[340]	2½ t	
	55[380]	3 t	
	60[410]	3½ t	
	70[480]	4 t	
	80[550]	4 t	
High-Strength Low-Alloy Steel		Class 1	Class 2
	45[310]	1½ t	1½ t
	50[340]	2 t	1½ t
	55[380]	2 t	2 t
	60[410]	2½ t	2 t
	65[450]	3 t	2½ t
	70[480]	3½ t	3 t
High-Strength Low-Alloy Steel with Improved Formability			
	50[340]	1 t	
	60[410]	1½ t	
	70[480]	2 t	
	80[550]	2 t	
Ultra-High Strength Steel Types 1 and 2			
	90 [620]	2½ t	
	100 [690]	2½ t	

X2. RELATED ISO STANDARDS

The ISO standards listed below may be reviewed for comparison with this ASTM standard. The relationship between the standards may only be approximate; therefore, the respective standards should be consulted for actual requirements. Those who use these documents must determine which specifications address their needs.

ISO 3573 Hot-rolled Carbon Steel Sheet of Commercial and Drawing Qualities

ISO 4995 Hot-rolled Steel Sheet of Structural Quality

ISO 4996 Hot-rolled Steel Sheet of High Yield Stress Structural Quality

ISO 5951 Hot-rolled Steel Sheet of Higher Yield Strength with Improved Formability

ISO 6316 Hot-rolled Carbon Steel Strip of Structural Quality

ISO 6317 Hot-rolled Carbon Steel Strip of Commercial and Drawing Qualities

X3. HARDNESS PROPERTIES

X3.1 Table X3.1 lists the typical hardness values.

TABLE X3.1 Typical Hardness Values

NOTE 1—The hardness values shown are at the time of shipment.
NOTE 2—Tests for hardness shall be conducted in accordance with the requirements of Test Methods E18.
NOTE 3—The hardness values are Rockwell B scale as measured or converted from the appropriate Rockwell scales.
NOTE 4—The typical hardness values apply to the full range of steel sheet thickness. Hardness tends to increase as the steel sheet thickness decreases.
NOTE 5—Hardness testing is commonly used to assess the relative formability of various designations of uncoated steel sheet. This assessment done by many users is recognized to be only an approximation of the relative formability and therefore cannot be used as a specification requirement.

Designation	Hardness-Rockwell B Scale
CS Type A	75 or less
CS Type B	75 or less
CS Type C	75 or less
DS	65 or less

SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes to this standard since the last issue (A1011/A1011M – 09b) that may impact the use of this standard. (Approved April 1, 2010.)

(*1*) Grade 45 Type 2 (rephos/renitrogenized) composition added to Table 2.
(*2*) Grade 45 Type 2 (rephos/renitrogenized) properties requirements added to Table 4.
(*3*) Grade 45 Type 2 added to Table X1.1.

Committee A01 has identified the location of selected changes to this standard since the last issue (A1011/A1011M – 09a) that may impact the use of this standard. (Approved November 1, 2009.)

(*1*) Section 5.1.6.1 deleted.
(*2*) Reversed order of 5.1.11 and 5.1.12 and added new section 5.1.12.1.

Committee A01 has identified the location of selected changes to this standard since the last issue (A1011/A1011M – 09) that may impact the use of this standard. (Approved May 1, 2009.)

(*1*) Corrected SI equivalence values for SS Grade 60 and SS Grade 70 tensile strength in Table 4.

Committee A01 has identified the location of selected changes to this standard since the last issue (A1011/A1011M – 08) that may impact the use of this standard. (Approved April 1, 2009.)

(*1*) Revised Section 8.1.2.

RFQ No. 02110305

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (***West Virginia Code*** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ___ day of _____, 20___.

My Commission expires _____, 20___.

AFFIX SEAL HERE **NOTARY PUBLIC** _____