

FF-H-1819
August 14, 1974
SUPERSEDING
(See 6.10)

FEDERAL SPECIFICATION

HARDWARE, BUILDERS'; AUXILIARY LOCKS

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. The hardware covered by this specification is that generally classified as builders' auxiliary.

1.2 Classification.

1.2.1 Types and grades. Auxiliary locks shall be of the types and grades described in Builders' Hardware Manufacturers' Association (BHMA) 501, as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

Federal Specification

PPP-H-1581 - Hardware (Fasteners and Related Items), Packaging and Packing for Shipment and Storage of.

Federal Standard

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks, as outlined under General Information in the Index of Federal Specifications and Standards, at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available, without charge, from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks, and the Index of Federal Specifications and Standards, from established distribution points in their agencies.)

Military Standards

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-109 - Quality Assurance Terms and Definitions.
- MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards, required by contractors in connection with specific procurement functions, should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

Builders' Hardware Manufacturers' Association (BHMA)

- 501 - Auxiliary Locks Standard.
- 1301 - Materials and Finishes Standards.

(Application for copies should be addressed to the Builders' Hardware Manufacturers' Association, 60 East 42nd Street, New York, NY 10017.

National Motor Freight Traffic Association, Inc. Agent

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 S. Riverside Plaza, Chicago, IL 60606.)

Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.

3. REQUIREMENTS

3.1 Standard compliance. Except as otherwise specified herein, auxiliary locks shall conform to the requirements of BHMA 501.

3.2 Standard Commercial product. The auxiliary locks shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product shall be included in the hardware being furnished. Standard commercial product is a product which has been or will be sold on the commercial market through advertisements or manufacturer's catalogs or brochures, and represents the latest production model(s).

3.3 First article. When specified (see 6.2), the contractor shall furnish an auxiliary lock of each type ordered, for first article inspection and approval (see 4.2.1 and 6.3).

3.4 Interchangeability. All removable items and replacement parts of similar equipment shall be interchangeable with corresponding items or parts and not require hand or machine fitting.

3.5 Trim. Unless otherwise specified (see 6.2), trim shall be of a commercial plain design. Items required to be of "modern" design shall be of a commercial decorative design or of a shape other than the plainest design otherwise furnished by the manufacturer and regularly cataloged by him. All trim items shall have straight, beveled or smoothly rounded sides, corners, and edges.

3.6 Lock fronts or face plates. Unless otherwise specified (see 6.2), lock fronts or face plates shall be flat. When beveled fronts are specified, the bevel shall be 1/8 inch in 2 inches. When rounded fronts are specified, the radius shall be 4 inches. When rabbeted fronts are specified, the depth of the rabbeted shall be 1/2 inch. Backset of the locks with rabbeted front shall be measured on the short side.

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3.7 Armored fronts. When specified (see 6.2), armored fronts may be provided in lieu of solid fronts on locks. The base plate of armored fronts may be steel or bronze.

3.8 Strikes. Unless otherwise specified (see 6.2), strikes for auxiliary locks and latches for doors with wood frames shall be plain. Strikes for latches shall have the lip either curved or flat. Template strikes shall be provided when specified (see 6.2), for all locks and latches to be installed in doors to be hung on hollow metal frames. Projecting corners of strikes shall be rounded.

3.9 Spindles. Triplex spindles may be furnished in lieu of threaded spindles.

3.10 Tumblers. Except for such minor variations in position as may result from ordinary manufacturing tolerances, all tumblers in bit key and cylinder locks shall be fully effective, and shall not permit operation of the lock bolt until each tumbler is moved into its proper position.

3.11 Cylinders. Cylinders for cylinder locks shall have pins in five or more pin tumbler cavities. Keyway shall be paracentric, that is, it shall have longitudinal ribs, at least one of which on each side of the keyway shall project to or beyond the center line of the keyway. Cylinders other than those in knobs shall not be less than 1-1/8 inches in diameter back of the head. When specified (see 6.2), cylinders shall be of a type which are removable from the face of the retainer housing.

3.12 Duplicate keys and change numbers. Information on noncommercial change numbers, and duplicate keys made therefrom, shall not be furnished, except where proper responsibility for the locks and keys or change numbers is clearly indicated.

3.13 Master keys. When specified (see 6.2), cylinder locks and three-tumbler bit key locks shall be master keyed. Unless otherwise specified (see 6.2), three master keys shall be furnished with each group of master keyed cylinders.

3.14 Fastenings. Hardware furnished under this specification shall be complete with all screws, bolts, etc., necessary for proper application. Such fastenings shall be of suitable size and type and shall harmonize with the hardware as to material and finish.

3.15 Finishes. Exposed surfaces of hardware shall have one of the applicable standard finishes as specified (see 6.2 and 6.6). As far as practicable, finishes as defined in BHMA 1301 should be confined to satin bronze, clear coated (BHMA 612), bright chromium-plated (BHMA 625), satin chromium-plated (BHMA 626), satin aluminum, clear anodized (BHMA 628), or satin stainless steel (BHMA 630).

3.16 Marking.

3.16.1 Marking of locks. The name of the manufacturer, or a trademark by which he can be readily identified, shall be legibly marked on the lock where it can be seen after installation. When specified (see 6.2), key change numbers or symbols shall be legibly marked on removable cylinders.

3.16.2 Marking of keys. Unless otherwise specified (see 6.2), key change numbers for cylinders shall be stamped on each key. When specified (see 6.2), each key shall be legibly stamped with the words "U.S. Property--do not duplicate." Key change numbers shall provide sufficient information for replacement of the key by the manufacturer.

3.17 Lubrication. Prior to shipment, all friction points on moving parts not self lubricating, shall be lubricated with a graphite, silicone, or similar type lubricant to insure freedom of movement under extreme conditions of temperature and humidity. The lubricant shall be of a type that will not leak out of the mechanism to cause stains or damage to surrounding surfaces.

3.18 Workmanship. All hardware be free from imperfections and defects which affect its appearance, durability, and serviceability. All finished parts of hardware that are to be set flush shall have accurately machined, true edges. Edges of unfinished steel and iron and unpolished work need not be machine-finished, but be smooth and reasonably true.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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.

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4.1.1 Inspection of materials and components. In accordance with 4.1, the supplier is responsible for insuring that materials and components used were manufactured, examined, and tested to the extent specified, in accordance with the requirements of referenced subsidiary specifications, and standards. The terms and definitions of MIL-STD-109 shall apply.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

4.2.1 First article inspection. First article inspection shall be performed on one of each type lock set ordered, when a first article sample is required (see 3.3). This inspection shall include the examination of 4.5 and the tests of 4.6.1 and 4.7. Failure of the first article to pass the examination or any of the tests shall be cause for rejection. The first article may be a standard production item from the supplier's current inventory, provided the unit meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining units to be furnished under the contract.

4.2.2 Quality conformance inspection. Quality conformance inspection shall be performed on the sample lock sets selected in accordance with 4.4. This inspection shall include the examination o 4.5 and the tests of 4.6.2 and 4.7.

4.3 Inspection lot. All units of the same type and grade, offered to the Government at one time, shall be considered a lot for purposes of inspection. The sample unit shall be one complete lock set.

4.4 Sampling.

4.4.1 Sampling for examination. A random sample of lock sets shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level II. The acceptable quality level shall be 1.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.4.2 Sampling for tests. A random sample of lock sets shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level S-4. The acceptable quality level shall be 1.5 percent defective.

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4.5 Examination. Each sample lock set selected in accordance with 4.4.1 shall be examined to verify compliance with the requirements of this specification. Examination shall be conducted as specified in Table I.

TABLE I. Classification of defects

Categories	Defects
Major	
101	Type or grade not as specified
102	Dimensions not as specified
103	Components missing
104	Components damaged
105	Sharp or burred edges
106	Flaking, peeling, or blistering of plating
Minor	
201	Finish not uniform
202	Locks and keys not marked properly
203	Polished finish not-uniform or is scratched

4.6. Tests.

4.6.1 First article. First article lock set shall be tested in accordance with BHMA 501. A certificate of compliance, accompanied by certified copies of reports of tests, either conducted in the manufacturer's plant and certified by an independent testing laboratory, or conducted in an independent laboratory, will be accepted as evidence that the hardware has passed the required tests. When auxiliary locks have been previously tested, the test requirements for the first article may be met by submittal of the certified test data from previous first article tests, in accordance with this specification, provided the design, construction, and manufacturing techniques have not been changed, and the supplier provides a certified statement to that effect.

4.6.2 Quality conformance. Each lock set selected in accordance with 4.4.2 shall be subjected to the operational tests, strength test, and when specified (see 6.2), the cycle tests as specified in BHMA 501. Any lock set failing to meet the qualification requirements and performance test values, as applicable, shall be rejected.

4.7 Performance tests for finishes. Finishes shall conform to the performance requirements specified in BHMA 501.

4.8 Inspection of preparation for delivery. Preparation for delivery requirements of the lock sets shall be inspected to determine conformance with the applicable requirements of section 5 of this specification.

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5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A or C, as required (see 6.2).

5.1.1 Level A. The lock sets shall be preserved and packaged in accordance with the applicable level A requirements of PPP-H-1581.

5.1.2 Level C. The lock sets shall be preserved and packed in accordance with the supplier's standard practice.

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

5.2.1 Level A. The lock sets shall be packed in accordance with the applicable level A requirements of PPP-H-1581.

5.2.2 Level B. The lock sets shall be packed in accordance with the applicable level B requirements of PPP-H-1581.

5.2.3 Level C. The lock sets shall be packed in a manner which will insure arrival at destination in satisfactory condition and 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. (See 6.2).

5.3.1 Civil agencies. In addition to any special marking required by the contract or order, interior packages and exterior shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military activities. In addition to any special marking required by the contract or order, the interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Hardware covered by this specification is intended to provide a means for securely locking doors.

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

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6.2.1 Procurement requirements.

- (a) Title, number, and date of this specification.
- (b) Type and grade of hardware required (see 1.2).
- (c) When a first article is required for inspection and approval (see 3.3).
- (d) Trim design, if other than specified (see 3.5).
- (e) Type of lock front or face plate required, if other than specified (see 3.6).
- (f) When armored fronts are required (see 3.7).
- (g) Type of strike if other than specified, and when template strikes are required (see 3.8).
- (h) When removable cylinders are required (see 3.11).
- (i) When master keys are required and number of keys, if other than specified (see 3.13).
- (j) Type of finish required (see 3.15).
- (k) Marking of locks and marking of keys (see 3.16.1 and 3.16.2).
- (l) When cycle tests are required (see 4.6.2).
- (m) Level of preservation and packaging and level of packing required (see 5.1 and 5.2).
- (n) Marking required (see 5.3).

6.2.2 Contract data requirements. When this specification is used in a procurement which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Armed Services Procurement Regulation, the data requirements identified below will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of ASPR 7-104.9(n) are not invoked, the data specified below shall be delivered in accordance with the contract requirements. Deliverable data required by this specification is cited in the following paragraphs.

<u>Paragraph</u>	<u>Data Requirement</u>	<u>Applicable DD 1664</u>
4.6.1	Certification of Compliance	DI-E-2121

(Copies of Data Item Descriptions required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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6.3 First article. When a first article is required, it shall be tested and approved under the appropriate provisions of paragraph 7-104.55 of the Armed Services Procurement Regulation. The first article may be a standard production item from the manufacturer's current inventory. The first article should consist of one unit. The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for examinations, test and approval of the first article.

6.4 Classification cross-reference. Classification cross-reference, as pertains to auxiliary locks, is furnished for information purposes only. When ordering hardware covered by this specification, the procuring agency should use the type and grade classifications available in BHMA 501. Type numbers listed in Table II are only those equal to items previously listed in FF-H-00106b. Many other types are available in BHMA 501 depending on individual needs and applications.

TABLE II. Classification cross-reference

FF-H-00106b		Corresponding BHMA 501 designation			
Types					
181K	Tubular deadlock. One cylinder and turn knob.	E2152,	E2153		
181L	Tubular deadlock. One cylinder. No turn knob.	E2102,	E2103,	E2162,	E2163
181M	Tubular deadlock. Two cylinders. No turn knob.	E2142,	E2143		
182B	Tubular cylinder night latch with guard bolt. One cylinder and turn knob.	E2122,	E2123		
183	Cylinder mortise night latch.	E16101,	E16102		
184	Mortise knob latch. For doors 1-3/8 inches thick and over.	E15013			
185	Mortise knob latch. For doors 1-3/4 inches thick and heavier.	E15012			
190K	Cylinder deadlock. One cylinder. One bronze turn knob.	E16071,	E16072		
190L	Cylinder deadlock. One cylinder.	E16081,	E16082		
190M	Cylinder deadlock. Two cylinders.	E16061,	E16062		

TABLE II. (con.)

191	Cylinder classroom deadlock. One cylinder. One bronze turn knob.	E16091, E16092
193	Hospital door roller latch.	E19091
194	Cylinder rim night latch.	E76213, E96213
195	Cylinder rim night latch. All bronze.	E16212
196	Cylinder rim deadlock.	E16222, E76223, E96223
197	Sliding door lock. Half- mortise, latch type.	E16161
198	Sliding door lock. Mortise, deadlock type. Two cylinders.	E16121, E16122
198A	Sliding door lock. Mortise, deadlock type. One cylinder.	E16141, E16142

6.5 Deleted type numbers. Some items of hardware (not cross-referenceable to BHMA 501) previously presented in FF-H-00106b, dated August 21, 1967, have been deleted from this specification. The deleted items are listed by type number and are as follows:

182A
189
192
192A
192B
192C

6.6 Finishes.

6.6.1 Selection of finishes. Where finishes other than those specified in 3.15 are required, selection, as defined in BHMA 1301, should be confined to finishes shown in Table III.

TABLE III. Finish standards

BHMA CODE	Finish description	Base metal	Category	Nearest U.S. equivalent
605	Bright, brass, clear coated	Brass	A	US3
606	Satin, brass, clear coated	Brass	A	US4
611	Bright, bronze, clear coated	Bronze	A	US9

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TABLE III. (con.)

613	Oxidized satin bronze, oil rubbed	Bronze	B	US10B
629	Bright stainless steel	Stainless steel 300 series	A	US32

6.6.2 Standard finishes. The standard finishes for builders' hardware are intended primarily to promote reasonable uniformity in the appearance of builders' hardware items. These finishes are subject to undesirable variations in appearance, and samples are used by the manufacturer as a guide for color and texture. Samples of the following finishes are available for reference purposes: BHMA 605, BHMA 606, BHMA 612, BHMA 618, BHMA 625, BHMA 626, BHMA 627, BHMA 628, BHMA 629, and BHMA 630. These may be obtained singly or in sets from the Builders' Hardware Manufacturers' Association, 60 East 42nd Street, New York, NY 10017.

6.6.3 Comparison of standard finishes. Owing to differences in the processes of producing hardware finishes and the variety of metals to which they are applied, it is commercially impracticable to attain an exact match. Therefore, it is understood that hardware delivered in a standard finish from two or more sources will compare reasonably when the items are viewed at arm's length and approximately 2 feet. This approximates the conditions of use, as for example, hinges and lock trim on opposite edges of a door.

6.6.4 Oxidized finishes. Oxidized finishes represent the natural aging of metals, and change with time; therefore, some variations from standard may be expected. An oxidized finish artificially produced may not match a similar finish produced by age.

6.7 Rules for hand of locks.

Rule A. The hand of a lock, including locks for French doors, is determined from the outside of the door to which it is applied. The outside of a cupboard, bookcase, or closet door is the room side. For other doors, the outside is usually the "push" or jamb side but always on the cylinder side.

Rule B. If, when standing outside of a door, the butts are on the right and the door swings away from you, it takes a right hand lock; if butts are on the left and the door swings away from you, it takes a left hand lock.

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Rule C. If standing outside and door opens toward you, doors with butts on right take a right hand reverse lock; if butts are on left it takes a left hand reverse lock.

6.8 Definitions. Given below are definitions of some of the special terms, generally applied to builders' hardware by the trade:

- (a) Backset (of a lock) - The horizontal distance from the face of the lock to the center line of knob hub, keyhole or cylinder.
- (b) Bit (of a key) - The projecting blade which is cut in a manner to actuate the tumblers and permit the lock bolts to be operated.
- (c) Builders' Hardware - Term applied to all hardware used in building construction but particularly that used on or in connection with doors, windows, cabinets and other movable members.
- (d) Cylinder (of a lock) - The cylindrical shaped assembly containing the tumbler mechanism and the keyway, which can be actuated only by the correct keys.
- (e) Deadbolt (of a lock) - A lock bolt having no spring action nor bevel, and which is operated by a key or a turn piece.
- (f) Deadlocking Latch Bolt - A latch bolt incorporating a plunger that is held in a retracted position when a door is closed, thus preventing the bolt from being retracted by end pressure.
- (g) Face (of a lock) - The exposed surface which shows in the edge of a door after installation. (See Front.)
- (h) Front (of a lock) - The plate through which the latching or locking bolts project. (See Face.)
- (i) Latch Bolt - A beveled spring bolt, usually operated by a knob, handle or turn.
- (j) Lock set - A lock, complete with trim, such as knobs, escutcheons, or handles.

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- (k) Paracentric - A term used in connection with cylinder plugs having projections on the sides of the keyway that extend beyond the vertical center line of the keyway.
- (l) Pin Tumblers - Small sliding pins in a lock cylinder, working against coil springs and preventing the cylinder plug from rotating until the pins are raised to the proper alignment by bitting of key.
- (m) Stop (of a lock) - The button, or other small device, which serves to lock the latch bolt against the outside knob or thumb piece or unlock it if locked. Another type holds the bolt retracted.
- (n) Spindle (of a lock) - The bar or tube connected with the knob or lever handle that passes through the hub of the lock or otherwise engages the mechanism to transmit the knob action to the bolt(s).
- (o) Strike - A metal plate or box which is pierced or recessed to receive the bolt or latch when projected. Sometimes called Keeper.
- (p) Tumbler - A guard or obstruction which prevents operation of a bolt except by insertion of the proper key.

6.9 Master keying. The manufacturer may be requested to lay out sufficient changes, in addition to those covered by the order, to provide for such future expansion as may be contemplated. However, in order that locks subsequently obtained will properly conform to the master key system thus established, it may be necessary to obtain the additional locks or cylinders from the original manufacturer.

6.9.1 Duplication of master keys. The manufacturer should refer all requests for duplicate master keys and information on master key change numbers to the executive head of the Government agency to which the locks were

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furnished, or other authority as may be designated by him, when the request does not indicate proper responsibility for the material or information desired.

6.10 Supersession data. This specification supersedes that part of FF-H-106a, dated November 23, 1948 and FF-H-00106b, dated August 21, 1967 which refers to Auxiliary locks.

MILITARY CUSTODIANS:

Army - WC
Navy - YD
Air Force - 82

Preparing activity:

Navy - YD

Review activity:

DSA - 15

Civil Agency Coordinating Activity:

VA - DMS

User activity:

Army - ME

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