



AMERICAN NATIONAL STANDARD

FOR

RESIDENTIAL DEADBOLTS



SPONSOR

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION, INC.

AMERICAN NATIONAL STANDARDS INSTITUTE

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AMERICAN NATIONAL STANDARD

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The Builders Hardware Manufacturers Association, Inc first published the basic material in this standard February 1971. It was entitled Standard 501 BHMA Product Standards Section E, Auxiliary Locks. ANSI approval was secured under the Canvass Method, leading to the publication of ANSI/BHMA A156.5, which included both cylinders and auxiliary locks. BHMA was accredited on 21 March 1983 by ANSI as a sponsor using the Canvass Method. In 2010, BHMA published updates of A156.5 being dedicated to cylinders, and a new A156.36 for auxiliary locks.

FOREWORD (This Foreword is not a part of ANSI/BHMA A156.40)

The general classification of builders hardware includes a wide variety of items which are divided into several categories. To recognize this diversity, a sectional classification system has been established. Residential deadbolts and dead latches is one such Standard is the result of the collective efforts of members of the Builders Hardware Manufacturers Association, Inc. who manufacture this product. The total Product Standards effort is, therefore, a collection of sections, each covering a specific category of items.

Performance tests, and, where necessary, dimensional requirements, have been established to ensure safety, security and stability to which the public is entitled. There are no restrictions on design, except for those dimensional requirements imposed for the reasons given above. It is also required that locks fit certain cutout dimensions.

This Standard is not intended to obstruct, but rather to encourage, the development of improved products, methods, and materials. The BHMA recognizes that errors will be found, items will become obsolete, and new products, methods, and materials will be developed. With this in mind, the Association plans to update, correct, and revise these Standards on a regular basis. It shall also be the responsibility of manufacturers to request such appropriate revisions.

In most cases, products have been described in grade levels related to performance and security. Choice of grade and specific product is made on the basis of utility, aesthetics, security objectives and end use desired.

The BHMA numbers, which indicate types of hardware do not identify grade, finish, or design and are not intended to be used without necessary supplementary information. Individual manufacturers' catalogs are consulted.

Users of this Standard consult applicable local building codes as to requirements affecting the functions of locks used on fire doors and doors within a means of egress. Some communities require the use of exterior door locks having a dead bolt with a 1 in. (25.4 mm) projection for the purpose of providing greater security. Only functions compatible with the requirements of the applicable building codes are used.

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1. SCOPE

1.1 ANSI/BHMA A156.40 establishes requirements for residential deadbolts and deadlatches, and includes durability, security, finish tests. Residential deadbolt and deadlatches are generally used for single family homes and multifamily dwellings.

1.2 Tests described in this Standard are performed under laboratory conditions. In actual usage, results vary because of installation, door and frame construction, maintenance and environmental conditions.

1.3 When locks and latches are used in fire door assemblies, they shall have been tested and listed for use in fire doors by a Nationally Recognized Testing Laboratory (NRTL) and shall be under an in-plant follow-up inspection service.

1.4 **Residential Grade Qualifications** Manufacturers shall indicate the Grade level of their locks for each of the three categories listed (Durability, Strength and Security, and Finish). Locks shall meet all tests for their grade listing for each of the categories independently. A Grade A lock for a specific category shall meet all Grade A criteria for that category, and a Grade B lock for a specific category shall meet all Grade B criteria for that category, and a Grade C lock for a specific category shall meet all Grade C criteria for that category.

2. DEFINITIONS

2.1 **Residential Deadlock** A lock having a latchbolt or deadbolt operated by a key and/or turn, and usually used in addition to a primary latching device.

2.2 **Backset** The distance from the edge of the door measured at the centerline of the door thickness to the centerline of the function holes or cross bore.

2.3 Bolts

2.3.1 **Auxiliary Dead Latch** A plunger which, when actuated, automatically locks a projected latch bolt against return by end pressure.

2.3.2 **Dead Bolt** A lock component having an end, which protrudes from, or is withdrawn into, the lock front by action of the lock mechanism. When the door is closed and the dead bolt thrown, it extends into a hole provided in the strike, locks the door, and does not retract with end pressure.

2.3.3 **Latch Bolt** A lock component having a beveled end which projects from the lock front in an extended position, but is forced back into the lock case by end pressure or drawn back by action of the lock mechanism. When the door is closed, the latch bolt projects into a hole provided in the strike, and holds the door in a closed position.

2.3.4 **Deadlocking Latch Bolt** A spring actuated latch bolt with a beveled end and incorporating a plunger which, when depressed, automatically locks the projected latch bolt against return by end pressure. Also called dead latch.

2.3.5 **Expanding or Interlocking Type Dead Bolt** A bolt which interlocks with its strike when fully engaged.

2.4 **Bored Dead Latch** A lock fitting round bored openings in the face and edge of a door and having a deadlocking latch bolt operated by a key or turn or both.

2.5 **Bored Dead Lock** A lock fitting round bored openings in the face and edge of a door and having a dead bolt operated by a key or turn or both.

2.6 **Case** The housing of a lock.

- 2.7 **Cylinder** The subassembly of a mechanical lock containing a plug with keyway and a body with movable detainers.
- 2.8 **Cylinder Body** The portion of a cylinder that surrounds the plug and contains the movable detainers. The cylinder body is sometimes called a cylinder shell.
- 2.9 **Cylinder Guard** That portion that surrounds the otherwise exposed portion of a cylinder to protect the cylinder from wrenching, cutting, pulling or prying.
- 2.10 **Cylinder Housing** The portion of a mechanical lock that surrounds and retains the cylinder body. It is often part of a lock itself.
- 2.11 **Cylinder Plug** A component of the cylinder within the body, which is actuated when the correct key is used.
- 2.12 **Key** A properly combined device specifically intended to operate a corresponding cylinder.
- 2.13 **Lock Front** A plate fastened to the edge of a door through which the bolts pass.
- 2.14 **Mortise Dead Latch** A lock fitting a mortised cavity prepared in the edge of a door and having a latch bolt and an auxiliary dead latch operated by a key or turn or both. The key or turn engage the lock through holes prepared in the faces of the door.
- 2.15 **Mortise Dead Lock** A lock having a dead bolt and otherwise the same as a mortise dead latch.
- 2.16 **Movable Detainer** Part of the mechanism of the cylinder which first should be moved by the key into a predetermined position before the key or plug can release. Examples include components known as pins, side bars, discs, and the like.
- 2.17 **Mounting Plate** A plate mounted on the inside of a door through which mounting bolts pass to attach the outside locking mechanism.
- 2.18 **Rim Lock** A lock mounted on the inside face of a door.
- 2.19 **Strike** A mortised or surface mounted plate fastened to the door frame into which the bolts project.
- 2.19.1 **Armored Strike** A strike reinforced in such a way as to strengthen the frame to which it is applied.
- 2.20 **Strike Box** A housing used in back of a strike to enclose the bolt or bolt openings.
- 2.21 **Tailpiece** A bar projecting from the back of a rim, bored lock cylinder or a push button mechanism engaging the lock mechanism and when rotated by the key or turn either locks or unlocks the lock.
- 2.22 **Turn** The component that projects or retracts a dead bolt or latch bolt by turning. Sometimes called a turnpiece or thumbturn.

3. GENERAL

3.1 **Cylinders and Input Devices for Locks** shall meet the performance requirements for the appropriate types and grade level found in the ANSI/BHMA Standard A156.5-2014 for Cylinders and Input Devices for the lock to retain its grade listing. Assemblies take the grade level of the lowest graded component.

3.2 No lock can provide complete security by itself. Locks may be defeated by forcible or technical means, or evaded by entry elsewhere on the property. No lock can substitute for caution, awareness of your environment, and common sense. Builders hardware is available in multiple performance grades to suit the application. In order to enhance security and reduce risk, consult a qualified locksmith or other security professional. For applications where pick resistance and other higher security protections are required users should consider locks meeting UL 437 or ANSI/BHMA A156.30 for High Security Cylinders.

3.3 **Tolerances** Where only minus tolerances are given, the dimensions are permitted to be exceeded at the option of the manufacturers. All values which do not carry specific tolerances or are not marked maximum or minimum shall have the following tolerances: Linear dimensions shall be $\pm 1/16$ in (1.6 mm). Pounds or pound force shall be $\pm 2\%$. Degrees shall be ± 2 degrees.

3.4 **Door and Frame Preparation** The lock models described in this standard shall fit the door and frame preparations described in the ANSI/BHMA A156.115 Series. Other configurations are permitted to fit special opening templating requirements. See manufacturers' instructions for details.

3.5 **Trim** Roses, escutcheons, knobs, levers, turns, paddles, cylinder guards shall cover all door preparation openings.

3.6 **Reference to other Standards** Referenced standards are available from www.buildershardware.com, www.ansi.org, www.astm.org, and www.ul.com.

3.7 **Values** Required values in this Standard are given in US units. The SI (metric) equivalents are approximate.

3.8 **Codes** Certain lock functions described in this Standard are not permitted on doors within a means of egress. Consult local Authority Having Jurisdiction. When locks and latches are used in fire door assemblies, they shall be listed for use in fire doors by a Nationally Recognized Testing Laboratory (NRTL) and shall be under an in-plant follow-up inspection service.

3.9 When any function of lock combines a dead bolt and auxiliary dead latch, the auxiliary dead latch shall be effective whether or not the dead bolt is projected.

4. DIMENSIONAL CHARACTERISTIC INCHES (MM)

4.1 **Door Thickness** The specifications for the door thickness for these products are defined in the ANSI/BHMA A156.115 series standards.

4.2 **Latch Bolt Projections** Tolerance: minus 1/16 in. (1.6mm)

Latch Bolt

Grade A Mortise and Rim Locks	1/2 in. (12.7mm)
Grade B Bored, Mortise and Rim Locks	1/2 in. (12.7mm)
Grade C Rim Locks	1/2 in. (12.7mm)

Dead Bolt

All Grades Dead Locks	1 in. (25.4mm)
Grade A Mortise	1 in. (25.4mm)



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Grade A & B Rim Locks – rotary or interlocking bolts	1 in. (25.4mm)
Grade B Mortise Locks	5/8 in. (15.9mm)
Grade C Rim	5/8 in. (15.9mm)

5 EXPLANATION OF IDENTIFYING NUMBERS

5.1 First character denotes BHMA Product section E.

5.2 Second character indicates general or trim material used.

	Description		Description
0	Optional material	5	Stainless steel, 300 series
1	Cast, forged or extruded brass or bronze	6	Malleable iron
2	Wrought brass or bronze	7	Cast iron
3	Cast, forged or extruded aluminum	8	Wrought steel
4	Wrought aluminum	9	Zinc alloys

5.2.1 In this Standard, the character 0 (optional material) has been used. Specifiers who delineate a specific trim material do so by substituting the first numeral 0 as appropriate. Manufacturers' catalogs are consulted to confirm availability. Trim materials most commonly used are aluminum, brass, bronze, 300 series stainless steel and zinc alloy.

5.3 The third character identifies the product type

1	Bored auxiliary dead locks and latches	6	Mortise or Rim dead locks and latches
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5.4 The fourth character (fourth and fifth in five-digit numbers) identifies the function of the products. These are arbitrary numbers assigned so that each type number shall be different.

Last character designates the operation and security grade classification of the item.

1	Grade A
2	Grade B
3	Grade C

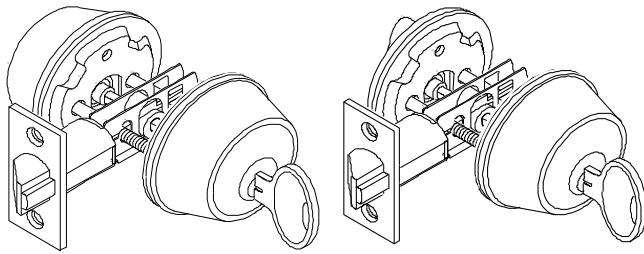
5.5 Suffix D indicates to be used with drill resistance cylinders as evaluated in A156.5.

5.6 Example: E0606A-D

E	Section E
O	Optional Material,
6	Mortise or Rim Dead Locks and Latches
0	Mortise Dead Lock, Key Either Side
6	
A	Grade A
D	Indicates Drill Resistant Cylinders Only

6. DESCRIPTION AND TYPE NUMBERS OF FUNCTIONS

6.1 Bored Dead Latches



6.1.1 Deadlocking latch bolt operated by key from either side. No latch bolt hold back.

E011A E011B E011C

6.1.2 Deadlocking latch bolt operated by key from outside and by turn from inside. Latch bolt is held retracted by key or other mechanism.

E012A E012B E012C

6.1.3 Deadlocking latch bolt operated by key from outside and by turn from inside. No latch bolt hold back.

E0110A E0110B E0110C

6.1.4 Deadlocking latch bolt operated by key from one side. Mounting plate on other side.

E013A E013B E013C

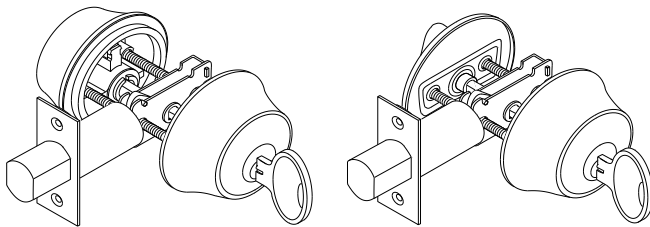
6.1.5 Deadlocking latch bolt operated by turn from inside. No cylinder. Has mechanism to hold latch bolt retracted.

E018A E018B E018C

6.1.6 Deadlocking latch bolt operated by turn from inside. No Cylinder. No latch bolt hold back.

E0112A E0112B E0112C

6.2 Bored Dead Locks



6.2.1 Dead bolt operated by key from either side.

E014A E014B E014C

6.2.2 Dead bolt operated by key from outside and by turn from inside.

E015A E015B E015C

6.2.3 Dead bolt operated by key from one side. Mounting plate on other side.

E016A E016B E016C

6.2.4 Dead bolt operated by key from outside. Turn retracts dead bolt but does not project it.

E017A E017B E017C

6.2.5 Dead bolt operated by turn from inside. No trim on other side.

E019A E019B E019C

6.2.6 Dead bolt operated by turn from inside. Blank plate on other side.

E0111A E0111B E0111C

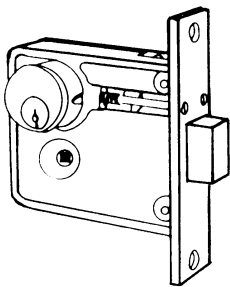
6.2.7 Dead bolt operated by key from one side. No trim on other side.

E010A E010B E0103

6.2.8 Dead bolt operated by key from either side. Key inside is non-removable when dead bolt is projected by key inside.

E0120A E0120B E0120C

6.3 Mortise Dead Locks



6.3.1 Dead bolt operated by key from either side.
E0606A E0606B E0606C

6.3.2 Dead bolt operated by key from outside and by turn from inside.
E0607A E0607B E0607C

6.3.3 Dead bolt operated by key from one side only.
E0608A E0608B E0608C

6.3.5 Dead bolt operated by turn from one side only. No trim on other side.
E0618A E0618B E0618C

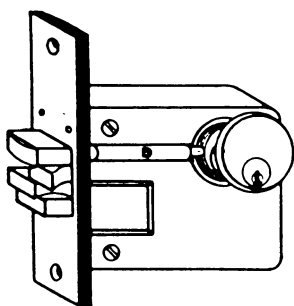
6.4 Mortise Dead Latches

6.4.1 Latch bolt operated by key from outside and by turn from inside. Auxiliary dead latch. Both latches are held retracted by stop or mechanical means. E0610A E0610B E0610C

6.4.2 Latch bolt operated by key from either side. Auxiliary dead latch. Both latches are held retracted by inside cylinder. E0611A E0611B E0611C

6.4.3 Latch bolt operated by key from outside and by turn from inside. Auxiliary dead latch. Neither latch bolt is held back. E0617A E0617B E0617C

6.5 Mortise Dead Locks For Sliding Doors



6.5.1 Expanding, or interlocking type dead bolt operated by key from either side. E0612A E0612B E0612C

6.5.2 Expanding or interlocking type dead bolt operated by key from outside and by turn from inside.
E0613A E0613B E0613C

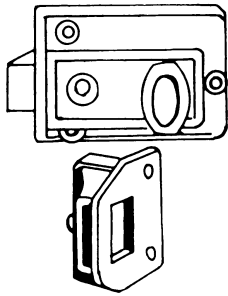
6.5.3 Expanding or interlocking type dead bolt operated by key from one side only. E0614A E0614B E0614C

6.6 Mortise Dead Latches For Sliding Doors

6.6.1 Hook type latch operated by key from either side. E0615A E0615B E0615C

6.6.2 Hook type latch bolt operated by key from outside and by handle from in-side. At manufacturer's option, flush handles are permitted to be provided, in which case key from outside locks or unlocks outside handle with inside handle always free. E0616A E0615B E0615C

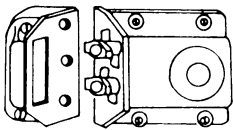
6.7 Rim Locks



6.7.1 Latch bolt by key from outside and by turn from inside. Latch bolt is held retracted by device from inside. Regular bevel strike standard. Reverse bevel strike furnished when specified.
E0621A E0621B E0621C

6.7.2 Deadlocking latch bolt by key from outside and by turn from inside. Regular bevel strike standard. Reverse bevel strike furnished when specified.
E0629A E0629B E0629C

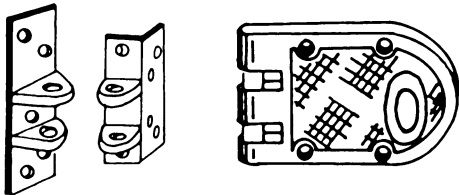
6.7.3 Dead bolt by key from outside and by turn from inside. Regular bevel strike standard. Reverse bevel strike furnished when specified.
E0622A E0622B E0622C



6.7.4 Rotary dead bolts operated by key from either side. Bolts are permitted to have hardened inserts.
E0623A E0623B E0623C

6.7.5 Rotary dead bolts operated by key from outside and by turn from in-side. Bolts are permitted to have hardened inserts.
E0624A E0624B E0624C

6.7.6 Rotary dead bolts operated by key from outside only. Bolts are permitted to have hardened inserts.
E0625A E0625B E0625C



6.8.7 Interlocking dead bolt operated by key from either side. Specify regular or reverse bevel strike. Grade 1 has automatic shutter protecting the lock mechanism in the event the cylinder is removed.
E0626A E0626B E0626C

6.7.8 Interlocking dead bolt operated by key from outside and by turn from inside. Otherwise the same as types E06261 and E06262.
E0627A E0627B E0627C

6.7.9 Interlocking dead bolt operated by key from outside only. Otherwise the same as types E06261 and E06262.
E0628A E0628B E0628C

6.7.10 Interlocking dead bolt operated by key from either side. The lock is through bolted from the inside and engages a guard plate on the outside. Fasteners are not exposed on the outside.
E0630A E0630B E0630C

6.7.11 Interlocking dead bolt operated by key from outside and by turn from inside. Otherwise the same as types E06301 and E06302.
E0631A E0631B E0631C