

[INCH POUND]
FF-L-2890C
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Superseding
FF-L-2890B
April 17, 2012

FEDERAL SPECIFICATION
LOCK EXTENSIONS (PEDESTRIAN DOOR LOCK ASSEMBLY PREASSEMBLED,
PANIC AND AUXILIARY DEADBOLT)

The General Services Administration has authorized the use of this federal specification by all federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers lock extensions: pedestrian door preassembled lock (PDPL), pedestrian door lock assembly panic, (PDLAP) and auxiliary deadbolts (ADB) for use with changeable combination locks and strikes. Pedestrian door assemblies and auxiliary deadbolts include designs that meet applicable requirements of the Americans with Disabilities Act (ADA), the Architectural Barriers Act (ABA), Uniform Federal Accessibility Standards (UFAS), the International Building Code (IBC), the National Fire Protection Association (NFPA), and International Fire Code (IFC).

1.1.1 Limited use. Lock extensions tested and qualified under this specification are to be sold only to the Federal Government, Government contractors specifically authorized to purchase these lock extensions, or other organizations or persons specifically authorized or required by the government to use these lock extensions.

1.2 Intent. The intent of this specification is to provide door locking hardware that meets the labeling requirements of the door lock assemblies and auxiliary deadbolts while providing sufficient security. Lock extensions shall have been submitted to a testing laboratory listed for fire door application testing and issuing the mark "F" stamped/etched on the latch for listed fire door assembly under each of the categories. These lock extensions shall be listed for aftermarket installation on existing fire door assemblies as the only locking device on the door.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: General Services Administration, Federal Acquisition Service, Supply Chain Management (QSD), Plan, Policy, and Program Integration (P3I) Division, Washington, DC 20406.

1.3 Application. Pedestrian door preassembled locks (PDPL) are used on fire labeled and non-labeled doors as the only locking device. Pedestrian door lock assemblies panic (PDLAP) is used in applications with assembly occupancies. Auxiliary door deadbolts (ADB) are used for security.

1.4 Classification. These lock extensions shall be of the following types and strike configurations:

1.4.1 Primary entrance lock extensions (complete with FF-L-2740).

Type I – PDPL – ANSI/BHMA A156.2 Grade 1 F44 complete with stand-alone access control capability– combination preassembled lock.

Type II – PDPL – ANSI/BHMA A156.2 Grade 1 F44 complete with electric release capability for use with an existing access control system – combination preassembled lock.

Type III – PDLAP – ANSI/BHMA A156.3 Grade 1 Type I, complete with stand-alone access control capability – rim lock exit device.

Type IV – PDLAP – ANSI/BHMA A156.3 Grade 1 Type I, complete with electric release capability for use with an existing access control system – rim lock exit device.

Type V – ADB – ANSI/BHMA A156.36 Grade 1 – lock auxiliary deadbolt.

Type VI – ADB – ANSI/BHMA A156.36 Grade 1 – lock auxiliary deadbolt Strike 1 – Single or double door in-swing mortise.

1.4.2 Secondary entrance lock extensions (with no integrated FF-L-2740).

Type VII – PDPL – ANSI/BHMA A156.2 Grade 1 F44, complete with electric release capability for use with an existing access control system – combination preassembled lock with internal deadbolt and thumb turn for use on secondary doors.

Type VIII – PDLAP ANSI/BHMA A156.3 Grade 1 Type I, complete with electric release capability for use with an existing access control system – rim lock exit device with internal deadbolt and thumb turn for use on secondary doors.

Type IX – PDPL – ANSI/BHMA A156.2 Grade 1 F44 preassembled lock – deadbolted, rim lock egress device.

Type X – PDLAP ANSI/BHMA A156.3 Grade 1 Type I – deadbolted, rim lock exit device.

Strike 1 – Single or double door in-swing mortise.

Strike 2 – Single door out-swing.

Strike 3 – Single or double door in-swing surface.

Strike 9 – Double door out-swing surface.

1.5 Classification descriptions.

1.5.1 Primary entrance lock extensions (complete with FF-L-2740B).

Type I – PDPL complete with integrated mechanical access control lock or electronic access control system (i.e., keypad) with a minimum 4-digit combination for use in non-automated (stand-alone) single door applications, FF-L-2740 electromechanical combination lock and ADA compliant one-function egress mechanism.

Type II – PDPL with integrated, fail secure, electric release capability for use with existing automated building access control systems, FF-L-2740 electromechanical combination lock and ADA compliant one-function egress mechanism.

Type III – PDLAP complete with integrated mechanical access control lock or electronic access control system (i.e., keypad) with a minimum 4-digit combination for use in non-automated (stand-alone) single door applications, FF-L-2740 electromechanical combination lock and fire rated panic hardware.

Type IV – PDLAP with integrated, fail secure, electric release capability for use with existing automated building access control systems, FF-L-2740 electromechanical combination lock and fire rated panic hardware.

Type V – ADB with FF-L-2740 electromechanical combination lock and escape mechanism extension with an automatic life safety device with keyed reset function. It shall use a keyed cylinder, and each Type V ADB shall be furnished with a minimum of two keys.

Type VI – ADB with FF-L-2740 electromechanical combination lock and escape mechanism extension with a manually operated life safety device.

1.5.2 Secondary entrance lock extensions (with no integrated FF-L-2740).

Type VII – PDPL with integrated, fail secure, electric release capability for use with existing automated building access control systems, internal deadbolt with thumb turn and ADA compliant one-function egress mechanism for secondary doors.

Type VIII - PDLAP with integrated, fail secure, electric release capability for use with existing automated building access control systems, internal deadbolt with thumb turn and ADA compliant, fire rated panic hardware for secondary doors.

1.5.3 Secondary egress/exit lock extensions (with no integrated FF-L-2740).

Type IX – PDPL permanently deadbolted, ADA compliant one function egress for use on egress only secondary doors.

Type X – PDLAP, permanently deadbolted, ADA compliant complete with fire rated panic hardware for use on exit only secondary doors.

Types I through IV and VII – X are required to comply with the following industry documents:

ANSI/BHMA A156.2, A156.3, & A156.36 – ADA/UFAS compliant

ANSI/BHMA A156.2, A156.3, & A156.36 – ADA/UFAS compliant with access control interface

ANSI/BHMA A156.10 – Power Operated Pedestrian Doors (when applicable)

ANSI/BHMA A156.2, A156.3, & A156.36 – Compliant with ANSI/BHMA A117.1

2. APPLICABLE DOCUMENTS

2.1 Government publications. The following documents, of the issues in effect on the date of invitation for bids or request for proposals, form a part of this specification to the extent specified herein.

Federal Specifications:

FF-L-2740 – Locks, Combination, Electromechanical

(Activities outside the Federal Government may obtain copies of federal specifications, standards, and commercial item descriptions as specified in the General Information section of the Index of Federal Specifications, Standards and Commercial Item Descriptions. The Index is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.)

(Single copies of this specification, and other federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from the General Services Administration, Federal Supply Service Bureau, Specification Section, Suite 8100, 470 L'Enfant Plaza, SW, Washington, DC 20407.)

(Federal Government activities may obtain copies of federal standardization documents and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies or contact the DoD Lock Program at: Comm. 1-800-290-7607, DSN 551-1212.)

Military Standards:

MIL-STD-129 – Military Marking for Shipment and Storage
 MIL-STD-810 – Environmental Test Methods and Engineering Guidelines
 MIL-STD-889 – Dissimilar Metals

(Copies of military specifications and standards required by contractors in connection with specific procurement functions are obtained from the ASSIST; <https://assist.dla.mil>)

Code of Federal Regulations:

Uniform Federal Accessibility Standards (UFAS)
 Architectural Barriers Act (ABA)
Department of Justice (DOJ) ADA Standards

DOJ – ADA Standards 2010

These standards, as adopted by the Department of Justice (DOJ) in September 2010, will take effect March 15, 2012 and replace DOJ's original ADA standards. DOJ is allowing immediate use of the 2010 standards as an alternative to the original 1991 standards. DOJ's standards apply to facilities covered by the ADA, including places of public accommodation, commercial facilities, and state and local government facilities.

United States Code:

Americans with Disabilities Act of 1990 (ADA)

Architectural Barriers Act of 1968

(Federal agencies are responsible for ensuring compliance with the ABA standards when funding the design, construction, alteration, or leasing of facilities.)

Individual State Code:

International Building Code	(IBC)
International Fire Code	(IFC)
National Fire Protection Association 80 and 101	(NFPA)

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 the date of invitation for bids or request for proposals shall apply.

American Society for Quality:

ANSI/ASQ Z1.4 – Sampling Procedures and Tables for Inspection by Attributes

(Private sector and civil agencies may purchase copies of these voluntary standards from the American Society for Quality, P. O. Box 3005, Milwaukee, WI 53201-3005.)

American Society for Testing and Materials:

ASTM D 3951 – Standard Practice for Commercial Packaging

(Private sector and civil agencies may purchase copies of these voluntary standards from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

Builders Hardware Manufacturers Association:

ANSI/BHMA A117.1 – Accessible and Usable Buildings and Facilities
ANSI/BHMA A156.2 – Bored and Preassembled Locks and Latches
ANSI/BHMA A156.3 – Exit Devices
ANSI/BHMA A156.10 – Power Operated Pedestrian Doors
ANSI/BHMA A156.36 – Auxiliary Locks

(Private sector and civil agencies may purchase copies of these voluntary standards from BHMA c/o Tech street, 1327 Jones Drive, Ann Arbor MI 48105.)

International Code Council:

International Building Code
International Fire Code

(Private sector and civil agencies may purchase copies of these voluntary standards from the International Code Council, 4051 W. Flossmoor Road, Country Club Hills, IL 60478.)

National Fire Protection Association:

NFPA 80 – Standard for Fire Doors
NFPA 101 – Life Safety Code
NFPA 252 – Fire Door Assembly Testing

(Private sector and civil agencies may purchase copies of these voluntary standards from the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.)

Underwriters Laboratories Inc.:

ANSI/UL 10B – Fire Tests of Door Assemblies
ANSI/UL 10C – Positive Pressure Fire Tests of Door Assemblies

(Private sector and civil agencies may purchase copies of these voluntary standards from Underwriters Laboratories Inc., 333 Pfingsten Rd., Northbrook, IL 60062-2096.)

(DoD activities may obtain copies of these adopted voluntary standards listed in the DoD Index of Specifications and Standards free of charge from the Standardization Document Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption is obtained.

3. REQUIREMENTS

3.1 Qualification. The lock extensions furnished under this specification shall be products which have been tested and have passed the qualification tests specified in section 4 and have been listed on or approved for listing on the applicable qualified products list (QPL). No changes may be made in the design or construction of listed products without prior written approval from the General Services Administration.

3.1.1 Qualification suspension.

3.1.1.1 Development of entry techniques. The lock extensions qualified under this specification will be continually tested by the Government during the term of qualification to determine whether the entry protection afforded by the lock extensions can be improved. At any time, if entry techniques which affect a lock extension's integrity are developed, the lock extension shall be disqualified and removed from the QPL.

3.1.1.2 Change in specification requirements. This specification will be continually reviewed by the Government to determine whether specification requirements should or can be changed to improve product quality. If, at any time, requirements are changed, and such changes affect the qualification status of a qualified lock extension, it shall be removed from the QPL and the manufacturer will be required to modify the product to the extent necessary to comply with specification changes and have the product requalified.

3.2 Description. The Type I – IV lock extensions, which comply with requirements of the UFAS, the ADA, the IBC, the NFPA Code 80 and 101 and ANSI/BHMA A117.1, shall consist of an external door mounting plate (3.4.6), a lock extension interface base plate (3.4.1) that is designed to mount all approved combination locks that meet Federal Specification FF-L-2740, a strike (3.4.7) and an access control component. The Type V & VI lock extensions; intended for use on rooms/facilities where there is no regular occupancy, shall consist of an external door mounting plate, a lock extension interface base plate with an approved combination lock that meets Federal Specification FF-L-2740, and a strike.

The Type VII & VIII lock extensions, which comply with requirements of the UFAS, the ADA, the IBC, the NFPA Code 80 and 101 and ANSI/BHMA A117.1, shall consist of a lock extension without a combination lock that have been specifically modified for use on a secondary door with access control and deadbolt functions. The Type IX & X lock extensions, which comply with requirements of the UFAS, the ADA, the IBC, the NFPA Code 80 and 101 and ANSI/BHMA A117.1, shall consist of a lock extension without a combination lock that have been specifically modified for use on a secondary door with an egress or exit function only.

3.3 Materials. Material used shall be free from defects that would adversely affect the performance or maintainability of the individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in the commercial market.

3.3.1 Material deterioration and control. The lock extension shall be fabricated from compatible materials inherently corrosion or deterioration resistant or treated to provide protection against corrosion. Dissimilar metals, as defined in MIL-STD-889, shall be plated or compatible to prevent operationally destructive corrosion.

3.4 Design.

3.4.1 Lock extension interface base plate. An internal lock extension interface base plate shall be designed for use with approved combination locks having standard dimensions and foot prints as described in Federal Specification FF-L-2740 and must be designed to integrate with an external door mounting plate (3.4.6) to increase the strength of the lock interface. Types I through IV lock extensions shall be designed and constructed to allow interchangeability of all approved FF-L-2740 combination locks. All lock extensions must be listed for fire door assemblies by a testing laboratory and marked with their label stating the same.

3.4.1.1 Unspecified design features. The Government reserves the right to reject any manufacturers design feature that is not required by the specification which could cause unanticipated operational, procedural or life safety problems with the intended use (per Para 1.2) of the product.

3.4.2 Compliance with access and egress requirements. Type I through IV & VII through X lock extensions shall comply with requirements of the UFAS, the ADA, the IBC, the NFPA Code 80 and 101 and ANSI/BHMA A117.1.

3.4.3 Automatic deadbolt mechanism. The lock extensions shall have an automatic deadlock tripper device that operates in such a manner that when the combination lock is in the locked position, the deadbolt shall automatically extend into the locked position upon engagement of the strike. Once the lock bolt has been extended to the locked position it shall not be possible to unlock the lock extension from outside the door without completely redialing the lock combination.

For Types I through VI, once the combination lock bolt has been extended to the locked position it shall not be possible to unlock the lock extension from outside the door without completely redialing the lock combination.

For Types VII and VIII, once the interior deadbolt has been set to the secure position it shall not be possible to unlock the lock extension from outside the door.

For Types IX and X, it shall never be possible to unlock the lock extension from outside the door.

3.4.4 Life safety feature. The following requirements apply to Types I through IV & VII through X: Lock extensions shall incorporate a life safety feature to meet the requirements of ICC (IBC & IFC), and NFPA 80 and 101. The operating devices should be capable of being operated with one hand and should not require tight grasping, tight pinching, or twisting of the wrist to operate once the lock is in the open condition. The life safety feature must ensure a quick, safe exit in the case of an emergency.

3.4.5 Keyed bypass. Types I through IV, VII & VIII may be fitted with an exterior keyed bypass that will allow emergency entry without use of the access control when the combination lock bolt is retracted. For Type I through IV, removal of the keyed bypass cylinder shall not permit access to the FF-L-2740 lock mechanism. For Types VII & VIII, removal of the keyed bypass cylinder shall not permit access to the interior deadbolt locking mechanism.

3.4.6 External door mounting plate. The lock extensions shall be provided with an external door mounting plate that shall increase the strength of the lock mount, be resistant to crushing of the door during installation, and aid in maintaining proper alignment between the interior lock extension base plate (3.4.1) and the exterior door mounting plate. The exterior door mounting plate shall be designed for door thickness between 1-3/8 and 2 inches (41 mm to 49 mm) thick. All parts required for proper operation over the range of door thickness shall be provided. The exterior door mounting plate shall have a corrosion resistant decorative finish or cover and be designed to accommodate the following configurations; an FF-L-2740 dial ring for Types I - VI, an access control input component (i.e., keypad) for Types I & III, a lever handle or pull handle for Types I - VIII and no external hardware for Types IX & X. In no case may the exterior door mounting plate interfere with the door stop on the jamb.

3.4.6.1 Exterior use option. The lock extensions external mounting plate shall include an option for a plate designed to be used when a type I, II, III, IV, V or VI lock extension is mounted on a building perimeter door which will be subject to the environment. The option should include appropriate gaskets to ensure moisture and dirt are not introduced into the locking mechanisms while also ensuring direct sunlight will not adversely affect any Liquid Crystal Displays (LCD) in use on the exterior mounting plate.

3.4.7 Strikes. The lock extensions shall be furnished with one or more strikes, as specified. The strikes shall withstand, without damage, a force of 600 pounds from outside of the door, when tested as specified in 4.7.4.

3.4.8 Combination Lock Function Remote Monitoring: Remote monitoring of a locked GSA Approved electromechanical combination lock (FF-L-2740) mounted on GSA Approved lock extension shall be accomplished in such a manner as to not adversely affect the operational performance or the security of the combination lock. The lock manufacturer must certify that any proposed modification or interconnection to any portion of the combination lock will not adversely affect the operation or the security of the lock. All lock extension part movement sensing shall be accomplished by UL listed mechanical micro switches tested for 1,000,000 cycles. The General Services Administration must also test the configuration to ensure the integrity of the lock extension has not been adversely affected by any proposed lock monitoring configurations.

3.4.8.1 Style I electromechanical combination locks (FF-L-2740): The external monitoring of the lock bolt position is the only approved remote monitoring of a GSA Approved Style I electromechanical combination lock in the locked condition.

3.4.8.2 Style II electromechanical combination locks (FF-L-2740): In addition to the external monitoring of the lock bolt position, only the dial movement and/or a power status change may be remotely monitored of a Style II electromechanical combination lock in the locked condition.

3.4.8.3 UL 2050 installation certification. National policy documents require sensors connected to a UL 2050 certified Intrusion Detection System for the protection of classified information to comply with UL 2050 installation standards. All products providing sensor output from lock extensions for use with Intrusion Detection Systems shall comply with UL 2050 installation standards.

3.4.9 Automatic bolt retraction option. For compliance with the automatic door section (404.3) of the Americans with Disabilities Act (ADA), an automatic bolt retraction mechanism compliant with ANSI/BHMA A156.10 can be integrated into the access control capabilities of the Types II, IV, VII and VIII lock extensions. The automatic bolt retraction mechanism shall be configured such that it is mechanically disabled when the FF-L-2740 lock or interior deadbolt on the secondary door lock extensions is in the secure position. The automatic bolt retraction option in all types of lock extensions (Types II, IV VII & VIII) shall meet the 500,0000 cycle requirements of paragraph 3.7.1.

3.4.10 Access control functions. The access control functions of the Types I & III lock extensions shall be complete with all required equipment (i.e. keypad, plug in power supply etc.) designed to be used as a standalone system mounted on or adjacent to the external door mounting plate as part of the lock extension. The Types II, IV, VII & VIII lock extensions shall have an access control release mechanism (motor or solenoid) designed for use with existing automated building access control systems.

3.5 Operation and performance.

3.5.1 Lock bolt operation. The torque required to retract the lock extension, using either the lock dial or exit actuator, shall not exceed 50 inch-ounces (353 N-m).

3.5.2 Case and bolt strength. The lock extension's case and bolt shall withstand the test specified in 4.7.3 without any fracture or bending of the bolt or case.

3.5.3 Temperature. The lock extensions shall operate in a temperature range of -10°F to 158°F (-23.3°C to 70°C). Lock extensions shall be tested in accordance with 4.7.6.

3.5.4 Humidity. The lock extensions shall be designed to operate in a humidity range of 10 to 98 percent relative humidity for its operating life. Lock extensions shall be tested in accordance with 4.7.2.

3.5.5 Vibration. The lock extensions shall be subjected to environmental vibration tests, as specified in 4.7.5. Operation and security performance and tolerances shall remain within standards.

3.5.6 Lock extension operation. All features of the lock extension and all internal parts shall operate smoothly for the operating life of the lock extension, without the addition of anything but proper lubricants and without showing appreciable wear. Lock extensions shall be tested for compliance as specified in 4.7.1.2. Each type of lock extension will be tested and listed for fire door application by a laboratory certified to test for this standard for door hardware. Testing shall be done to the following standards:

- ANSI/UL 10C, Positive Pressure Fire Tests of Door Assemblies
- ANSI/UL 10B, Fire Tests of Door Assemblies
- NFPA 252, Standard Methods of Fire Tests of Door Assemblies (National Fire Codes, vol. 6)

Testing by any nationally recognized testing laboratory to these standards is acceptable with a certification of testing completion and passing. Nationally recognized testing laboratories are listed at <http://www.osha.gov/dts/otpca/nrtl/index.html#nrtls>.

3.5.7 Electrostatic discharge. The lock extensions with a properly mounted FF-L-2740 lock shall be subjected to the electrostatic discharge tests, as specified in 4.7.7. The tests shall be performed with the lock extension mounted on a wood stand. Operation, security performance and tolerances shall remain within standards.

3.6 Security.

3.6.1 Government testing. The Government reserves the right of testing the lock extension in accordance with standards that are privileged to the Government.

3.6.2 Surreptitious entry. The lock extensions shall resist surreptitious entry for a period of 20 man-hours when tested as specified in 4.7.8.

3.7 Finish and workmanship. All surfaces shall have a uniform finish of sufficient smoothness to accept marking required. The lock extension shall be free of sharp edges, burrs, slivers and any defects affecting appearance, operations or serviceability.

3.8 Instructions. Complete instructions on the installation, applications, and operation of the lock extension and any access control component shall be provided with each lock extension. Each lock extension body will have the listing mark for fire door application. The maximum door undercut shall not exceed ¼ inch. Frames are to be secured tight in the opening. Drywall must extend ½ inch under the frame. Height of installation for lock extensions should not be lower than 34 inches above the finished floor and no higher than 42 inches above the finished floor. The auxiliary deadbolt should be installed no lower than 44 inches above the finished floor and no higher than 48 inches above the finished floor.

3.9 Regulatory requirements. The contract officer/contractor is encouraged to use recovered materials in accordance with Public Law 94-580, as amended, to the maximum extent practicable.

3.10 General Services Administration label. This label shall be affixed to the exposed surface of the locking device located on the inside of the door. The label shall have lettering not less than 1/8 inch high. The label shall state the following:

GSA APPROVED
FF-L-2890
TYPE **

4. QUALITY ASSURANCE PROVISIONS

4.1 Manufacturer. The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, 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. Inspection records of the examination and tests with itemized results shall be kept complete at the manufacturer's facility, available to the Government throughout the duration of the contract, or a minimum of two years, whichever is longer. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspections set forth in this specification shall become a part of the supplier's overall inspection system or quality program. The absence of any inspection requirements in this specification shall not relieve the supplier of the responsibility for ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the specification.

Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Component and material inspection. In accordance with 4.1, the supplier is responsible for insuring that components and materials are manufactured, tested and inspected in accordance with the requirements of referenced specifications and standards to the extent specified or, if none, in accordance with this specification.

4.2 Testing procedures and tests.

4.2.1 Testing agency. Qualification tests accomplished on lock extensions submitted for approval for inclusion on the applicable Qualified Products List (QPL) and any retesting that may be required shall be performed by a testing agency specifically designated by the General Services Administration.

4.2.2 Test costs. All testing costs entailed in determining the qualification of the supplier's product, including costs of retesting of a qualified product if subsequently disqualified under 3.1.1.1 or 3.1.1.2, shall be borne by the supplier, and shall be payable to the General Services Administration.

4.2.3 Test procedures. The following procedures shall govern the testing of all lock extensions submitted for qualification under this specification. All testing procedures for Types I through IV will be completed with all approved FF-L-2740 combination locks.

4.2.3.1 Test discontinuation. A qualification test may be discontinued at the Government's testing facility at any time the product fails to meet any one or more of the requirements set forth in this specification. The manufacturer may be permitted to make modifications on the sample during the testing phase where such modifications, in the judgment of the General Services Administration and the testing facility, are clearly in the interest of the Government.

4.2.3.2 Retest. In case of failure of the sample, consideration will be given to the request of the manufacturer for resubmission for retest only after it has been clearly shown that changes have been made in the product which the Government considers sufficient to warrant retest.

4.2.3.3 Disclosure to manufacturer. The manufacturer or his representative will not be permitted to observe the actual tamper resistance tests conducted on his product at the testing facility. However, when samples tested fail to comply with the requirements of this specification, the sample may be examined by the manufacturer or his representatives and full details of the failure may be made known to them in a manner which, for reasons of security, will be in the best interest of the Government.

4.2.3.4 Test samples. Ten qualification test samples shall be forwarded at a time and to a place designated by the General Services Administration.

In the event the samples are destroyed or damaged to such an extent during testing that testing cannot be completed, the Government reserves the right to require the manufacturer to furnish additional samples to complete the testing. Samples delivered to the test facility shall have a tag attached, which shall reference this specification and identify the sample by type and strike.

4.2.3.5 Drawings and material specifications. The manufacturer shall furnish two complete sets of construction and assembly drawings and material specifications with the sample submitted for qualification. When samples have been tested and the product is approved for inclusion on the applicable QPL, the manufacturer shall furnish three complete hard copy and one electronic copy in DWG or DXF format (*on a non-rewritable media*) of the assembly and construction drawings and material specifications lists to the General Services Administration for the Government's use in inspection and acceptance of the product after award of contract. All material so furnished by the manufacturer will be held in proprietary confidence.

4.2.3.6 Changes in construction or construction drawings. No changes shall be made in the construction or construction drawings of the pedestrian door lock assembly preassembled, panic and auxiliary deadbolts after they have become qualified and are furnished under contract or order unless prior written authorization to make changes is obtained from the GSA contracting officer.

4.3 Qualification testing. Qualification testing shall consist of the tests described under test methods in 4.7. Failure of the sample to withstand one or more of these tests shall provide reason to consider the product as having failed to meet qualification requirements.

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

- a. Quality conformance inspection (see 4.5)
- b. Inspection of preparation for delivery (see 4.5.4)

4.5 Quality conformance inspection. The lock extensions shall be examined for defects in accordance with Table 1. Presence of any defect listed shall provide reason to reject the product. Rejected lock extensions may be reworked to correct defects and they may be submitted for acceptance. Reworked lock extensions shall be so indicated to the Government inspector.

4.5.1 Component and material inspection. The supplier is responsible for insuring that components and materials are manufactured, tested and inspected in accordance with the requirements of referenced specifications and standards to the extent specified or, if none, in accordance with this specification.

4.5.2 End item inspection. All items must meet all requirements of section 3. Sampling for inspection shall be in accordance with ANSI/ASQ Z1.4. The inspections set forth in this specification shall become a part of the supplier's overall inspection system or quality program.

The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the specification. Sampling in quality conformance does not authorize the submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material. The inspection level shall be level II with an Acceptable Quality Level of 2.5 percent defective.

4.5.3 Quality conformance testing. Periodically, during the term of the contract, the Government inspector, at a time convenient to the Government, may select samples of the manufacturer’s regular production to subject them to the tests in 4.7. This acceptance testing shall be performed by a Government agency specifically designated by the contracting officer. Failure of the lock extension to meet any one or more of these tests shall provide reason to suspend acceptance of the manufacturer’s product until the Government is satisfied that all defects have been corrected.

Table 1. Examination for nonconformance.

Material is not resistant to corrosion and deterioration or treated to be resistant to corrosion and deterioration for the applicable storage and operating conditions.
Dissimilar metals as defined in MIL-STD-889 are not treated or plated to prevent corrosion.
Supplier does not have documentation available for identification of material, material finishes or treatment.
Used, rebuilt, or remanufactured components incorporated in the lock extensions.
Design not as specified.
Life safety feature does not work as specified.
Automatic deadbolt mechanism does not operate as specified.
Mounting plate not provided as specified.
Dimensions not as specified.
Bolt holdback device not as specified.
Lock extension torque not as specified.
Finish not as specified.
Listing for fire door assemblies.
Instructions not furnished, or not as specified.

4.5.4 Inspection of preparation for delivery. An inspection shall be made to determine that packaging, packing and marking comply with those specified in section 5 of this specification. For examination of interior packaging, the sample unit shall be one shipping container fully prepared for delivery, selected at random just prior to the closing operations. Sampling shall be in accordance with ANSI/ASQ Z1.4. Nonconformity of closure listed shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 with an AQL of 4.0 nonconformities per hundred units.

Table 2. Classification of preparation for delivery defects.

Packaging	Change key not in unit container with lock.
	Key not in unit container with lock as specified (keyed bypass only).
	Instruction sheet not in unit container with lock.
	Unit container not sealed with reinforced tape.
Packing	Shipping container not as specified.
	Shipping container weights exceed specified limitations.
Marking	Marking not in accordance with MIL-STD-129.
	Marking not in accordance with the contract or order.
	Item description marked on unit container.
	Unit containers not marked or labeled with special instructions as specified.

4.6 Acceptance after award of contract. The Government reserves the right to inspect and test each lock extension, including all component parts thereof, delivered for acceptance under this specification after award of contract.

4.7 Test methods.

4.7.1 Cycle test.

4.7.1.1 Types I – IV. Types I – IV lock extensions shall be subjected to the ANSI/BHMA Grade 1 standard of 500,000 cycles of operation without replacement of any component. One cycle shall consist of the activation of every aspect of the lock extension to include the following:

- a) Activation of the lock extension from the secure side (egress) with the combination lock in the locked (emergency egress) and in the unlocked (normal egress) position to include full retraction of the locking mechanism to open the door.
- b) Activation of any access control components of the lock extension (ingress) to include the power operated pedestrian door option (3.4.9) with the combination lock in the unlocked position to include full retraction of the locking mechanism to open the door.
- c) Individual commercially available release components used in the electronic access control function of the lock extension such as solenoids and motors must be certified for at least 1,000,000 unloaded cycles by the manufacturer. If an electric strike is used as the electronic access control function of a lock extension, it must be UL-1034 listed.

4.7.1.2 Types VII & VIII. Types VII & VIII lock extensions shall be subjected to the ANSI/BHMA Grade 1 standard of 500,000 cycles of operation without replacement of any component. One cycle shall consist of the activation of every aspect of the lock extension to include the following:

- a) Activation of the lock extension from the secure side (egress) with the internal deadbolt extended (emergency egress) and in the unlocked (normal egress) position to include full retraction of the locking mechanism to open the door.
- b) Activation of any access control components of the lock extensions (ingress) to include the power operated pedestrian door option (3.4.9) with the internal deadbolt retracted to include full retraction of the locking mechanism to open the door.
- c) Individual commercially available release components used in the electronic access control function of the lock extension such as solenoids and motors must be certified for at least 1,000,000 unloaded cycles by the manufacturer. If an electric strike is used as the electronic access control function of a lock extension, it must be UL-1034 listed.

4.7.1.3 Types IX & X. Types IX & X lock extensions shall be subjected to the ANSI/BHMA Grade 1 standard of 500,000 cycles of operation without replacement of any component. One cycle shall consist of the activation of every aspect of the lock extension to include the following:

- a) Activation of the lock extension from the secure side (egress/exit) to include full retraction of the locking mechanism to open the door.

4.7.2 Moisture absorption test. The lock extension shall be tested in accordance with MIL-STD-810, Method 507.6.

4.7.3 Case and bolt strength. Mount the lock extension on a test stand so that the bolt extends beyond the edge of the stand, as shown in Figure 1. Apply a force of 600 pounds to the face of the bolt as shown in the figure. Examine the extension and bolt for damage. Apply a force of 200 pounds to the end of the bolt as shown in Figure 2. Any fracture or bending of the bolt or case shall be a failure.

4.7.4 Strike test. Mount the strike on a test stand as shown in Figure 3. Apply a force of 600 pounds in the direction of the door swing for the strike being tested. The force shall be applied to the strike opening as would be applied on the lock extension in an attempt to force the lock extension. Any fracture or bending of the strike shall be a failure.

4.7.5 Environmental vibration. The category 21 environmental vibration test of MIL-STD-810 shall be conducted. Lock extensions shall be checked for conformance to the operation and tolerance requirements. There shall be no movement or damage that affects normal operation or security.

4.7.6 Temperature test.

4.7.6.1 Low temperature test. The lock extensions shall be placed in a chamber maintained at a temperature of -10°F for a period of three hours or until the lock extension temperature has stabilized. At the end of that period, without removing the lock from the chamber, the lock extensions shall be examined for proper operation and for any defects that would affect the operation or life of the product. The lock extensions shall be removed from the chamber and allowed to return to room temperature. The lock extensions shall be examined for any damage or defects due to the low temperature exposure. There shall be no defects affecting the operation or life of the lock extensions.

4.7.6.2 High temperature test. The lock extensions shall be placed in a chamber maintained at a temperature of 158°F for a period of three hours. At the end of that period, the lock extensions shall be removed from the chamber and, without allowing time to cool, the lock extensions shall be examined for proper operation and for any defects that would affect the operation or life of the product. There shall be no defects affecting the operation or life of the lock extensions.

4.7.7 Electrostatic discharge. The lock extension dial shall be subjected to five electrostatic discharges of 250kV. After exposure, the lock system shall operate normally.

4.7.8 Surreptitious entry. Attempts shall be made to unlock the lock extension when properly installed on a standard door in the secured condition from the exterior through means other than manipulation of the combination lock or the required interior ADA and life safety approved exit/escape mechanisms.

4.7.8.1 Surreptitious entry tools and devices. Tools and devices used in the surreptitious entry tests are unlimited.

5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. Unless otherwise specified in the contract or order, the lock extension shall be packaged and packed in accordance with the manufacturer's normal commercial practice. Packed units shall be in accordance with ASTM D 3951 and shall ensure carrier acceptance under the National Motor Freight Classification and Uniform Freight Classification.

5.2 Marking. Marking shall be in accordance with MIL-STD-129, as specified.

5.3 Security label. Each unit container specified in 5.1 shall have an additional security label with the following special handling instructions:

WARNING

THIS LOCK IS A US GOVERNMENT LIMITED USE ITEM WHICH MUST BE
SHIPPED, STORED AND INSTALLED AS SPECIFIED IN FEDERAL STANDARD 809

WARNING

The security label shall be approximately 4" X 8" in size and must be applied to cover the box seam such that the label must be cut to open the box. The letters shall be ¼-inch high minimum. Color to be red or black and shall be applied by application of a preprinted label.

6. NOTES

6.1 Intended use. The lock extensions covered by this specification are intended for use on interior pedestrian doors used for normal entrance and egress during day-to-day operations.

6.1.1 Type I and Type II. For use on standard egress doors, right and left hand interchangeable, standard and reverse bevel capable, that require one-handed, single-motion egress with no panic requirements. This lock extension is meant to be used on rooms/facilities where the occupancy is less than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.1.2 Type III and Type IV. For use on fire exit doors, right and left hand interchangeable, reverse bevel, that require one-handed, single-motion egress with panic requirements. This lock extension is meant to be used on rooms/facilities where the occupancy is equal to or greater than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.1.3 Type V and Type VI. For use on standard pedestrian doors, right and left hand interchangeable, standard and reverse bevel capable, that are not on a required egress route and are not required to have one-handed single-motion egress. This lock extension is meant for use on rooms/facilities where there is no regular occupancy. An example of this would be a telecommunications closet. Use is subject to AHJ approval.

6.1.4 Type VII. For use on standard egress doors, right and left hand interchangeable, standard and reverse bevel capable, that require one-handed, single-motion egress with no panic requirements. This secondary door lock extension (no FF-L-2740 lock) with access control capability is meant to be used on rooms/facilities where the occupancy is less than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.1.5 Type VIII. For use on fire exit doors, right and left hand interchangeable, reverse bevel, that require one-handed, single-motion egress with panic requirements.

This secondary door lock extension (no FF-L-2740 lock) with an access control capability is meant to be used on rooms/facilities where the occupancy is equal to or greater than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.1.6 Type IX. For use on standard egress only doors, right and left hand interchangeable, standard and reverse bevel capable, that require one-handed, single-motion egress with no panic requirements. This egress only secondary door lock extension (no FF-L-2740 lock) is meant to be used on rooms/facilities where the occupancy is less than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.1.7 Type X. For use on fire exit only doors, right and left hand interchangeable, reverse bevel, that require one-handed, single-motion egress with panic requirements. This exit only secondary door lock extension (no FF-L-2740 lock) is meant to be used on rooms/facilities where the occupancy is equal to or greater than what the Authority Having Jurisdiction (AHJ) considers meeting assembly requirements.

6.2 Ordering data. Purchasers shall specify the following:

- a) Title, number and date of this specification.
- b) Type, and strike required (see 1.4).
- c) Special packaging, packing and marking, if required.

6.3 Definitions.

6.3.1 Access control. For the purposes of this specification and as required by National Policy documents (NISPOM, ICD's etc.), access control is a security mechanism or system which utilizes a card and/or at least a 4-digit code to control the lock extension when the GSA approved combination lock bolt or internal deadbolt is in the retracted position for occupied operations of the facility. Access control applies to Types I through IV, VII & VIII only.

6.3.2 Automated access control. For the purposes of this specification, automated access control refers to an existing sophisticated security system that complies with Chapter 8 (Section A - 2) of the ICD 705 Technical Specifications and is approved to control a release mechanism of the unattended lock extension when the GSA approved combination lock bolt or internal deadbolt is in the retracted position for occupied operations of the facility.

6.3.3 Entry. For the purpose of this specification, entry means retracting the bolt.

6.3.4 Keyed bypass. For the purposes of this specification, a keyed bypass is a cylinder operated by a key that overrides the access control function of the lock extension when the GSA approved combination lock bolt or internal deadbolt is in the retracted position for emergency situations and shall not be considered as an access control capability.

6.3.5 Non-automated access control. For the purposes of this specification, non-automated access control is a simple security mechanism which utilizes at least a 4 digit code to directly control the lock extension when it is under constant visual observation without integrating into an existing security system and the GSA approved combination lock bolt or internal deadbolt is in the retracted position for occupied operations of the facility.

6.3.6 Normal use. For the purpose of this specification, normal use means retracting and extending the bolt using the lock dial or the extension exit actuator.

6.3.7 Surreptitious entry. For the purpose of this specification, surreptitious entry means a method of entry which would not be detectable during normal use or during inspection by a qualified person.

6.4 Reference identification number. The reference identification number (RIN) system may be used for items covered by this specification. An example of the RIN is as follows:

FFL2890-I-9

1st Position

- I – Type I
- II – Type II
- III – Type III
- IV – Type IV
- V – Type V
- VI – Type VI
- VII – Type VII
- VIII – Type VIII
- IX – Type IX
- X – Type X

2nd Position

- 1 – Strike 1
- 2 – Strike 2
- 3 – Strike 3
- 9 – Strike 9

MILITARY INTERESTS:

Military Coordinating Activity:

DLA-IS

Custodians:

DLA-IS

AF-99

Army-AR

Preparing Activity:
GSA-FAS

FSC 5340

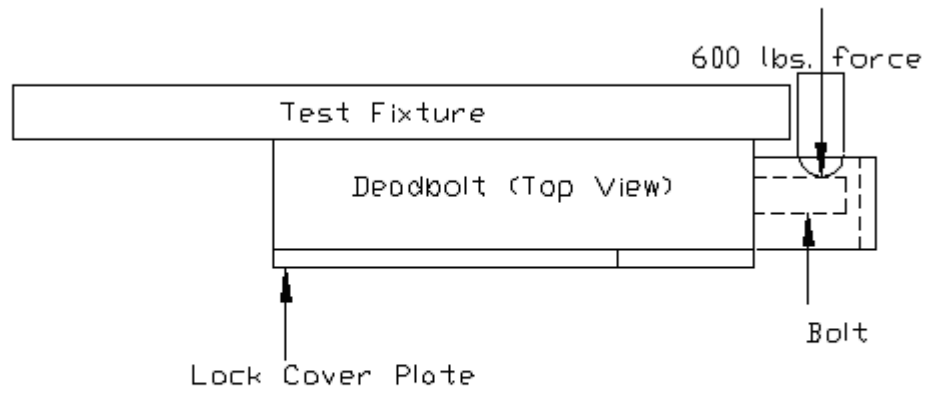


Figure 1 Case and Bolt Strength Test

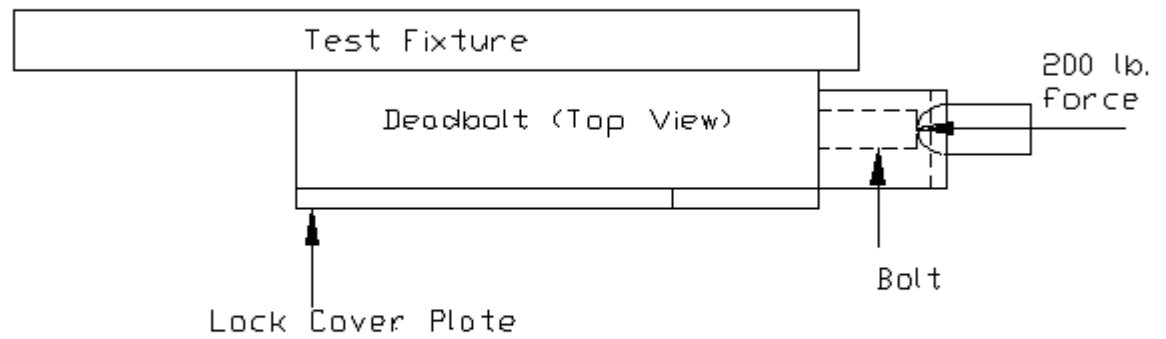


Figure 2 Bolt End Pressure Test

Pedestrian Door Lock Test Fixture:

- (1) Vertically mounted, 1-5/8 to 1-3/4 inch thick plate approx. 19 inches wide by 11 inches high.
- (2) Drilled and topped to allow for mounting deadbolt.
- (3) Hinged to allow for cyclic test using strike.

Alternatively, the lock may be mounted to a fixed plate with the strike mounted to a moveable fixture.

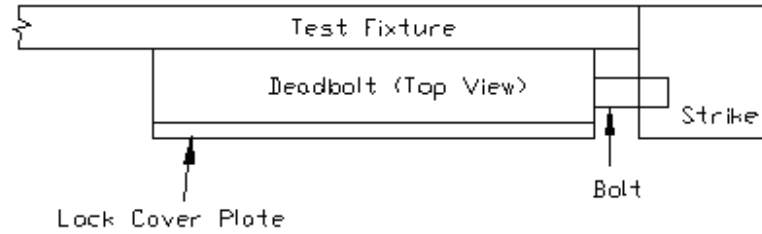
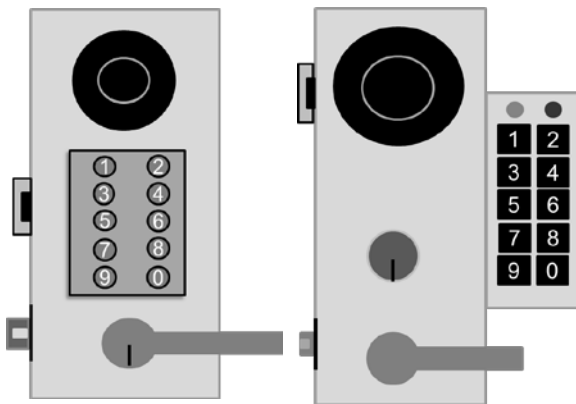


Figure 3 - Test Fixture Configuration

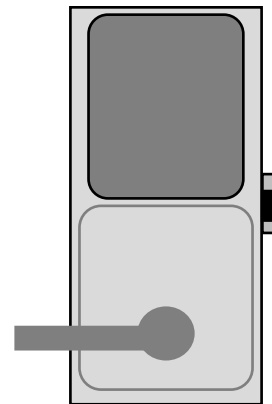
2890C Conceptual Drawings

Type I. Pedestrian door preassembled lock; integrated access control (mechanical/electronic); non-automated single door applications; ADA compliant one-function egress mechanism; FF-L-2740 electromechanical lock; with or without keyed bypass

Exterior View

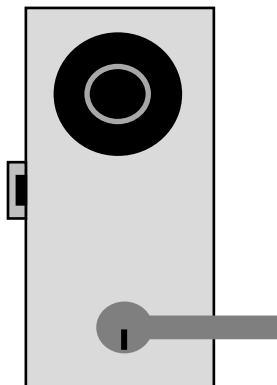


Internal View

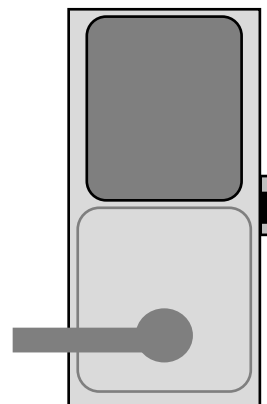


Type II. Pedestrian door preassembled lock; fail secure, electric release capability for use with existing access control; ADA compliant one-function egress mechanism; FF-L-2740 electromechanical lock; with or without keyed bypass.

Exterior View

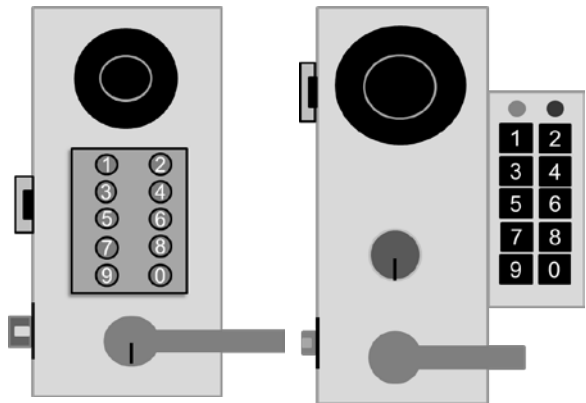


Interior View



Type III. Pedestrian door lock assemblies panic; integrated access control (mechanical/electronic); non-automated single door applications; FF-L-2740 electromechanical lock; fire rated panic hardware; with or without keyed bypass.

Exterior View

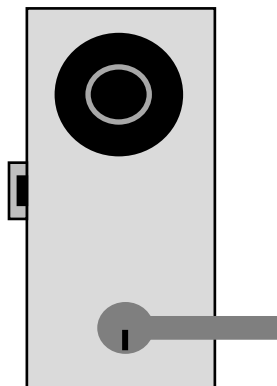


Internal View



Type IV. Pedestrian door lock assemblies panic; fail secure, electric release capability for use with existing access control; FF-L-2740 electromechanical lock; fire rated panic hardware; with or without keyed bypass.

Exterior View



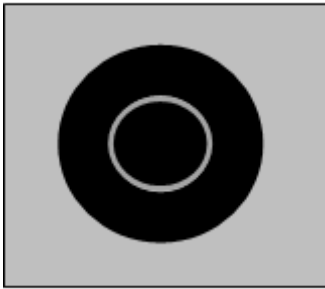
Interior View



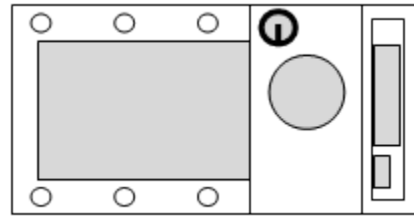
FF-L-2890C

Type V. Auxiliary door deadbolt; escape mechanism extension with automatic life safety device with keyed reset function; keyed cylinder; FF-L-2740 electromechanical combination lock

Exterior View

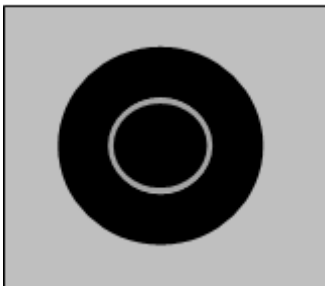


Interior View

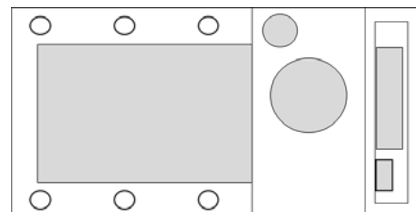


Type VI. Auxiliary door deadbolt; escape mechanism extension with manually operated life safety device; FF-L-2740 electromechanical combination lock.

Exterior View



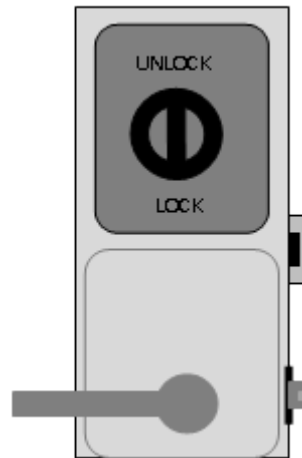
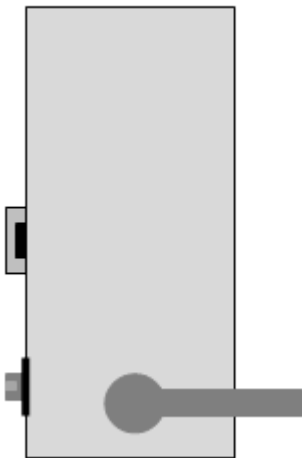
Interior View



Type VII. Pedestrian door preassembled lock; fail secure, electric release capability for use with existing access control; ADA compliant one-function egress mechanism; internal deadbolt with thumb turn; secondary doors.

Exterior View

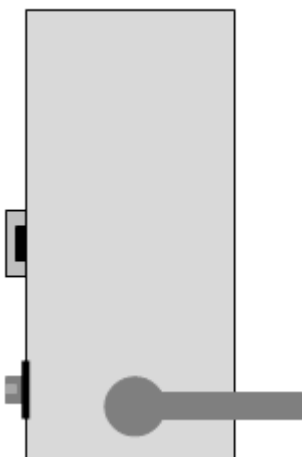
Interior View



Type VIII. Pedestrian door lock assemblies panic; fail secure, electric release capability for use with existing access control; ADA compliant internal deadbolt with thumb turn; fire rated panic hardware; secondary doors.

Exterior View

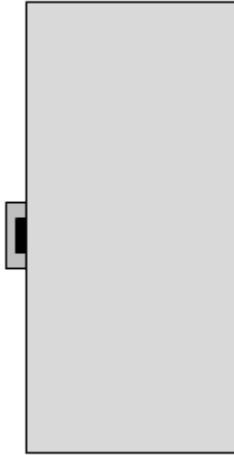
Interior View



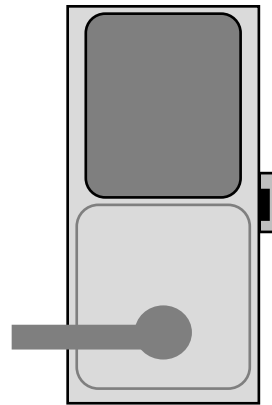
FF-L-2890C

Type IX. Pedestrian door preassembled lock; permanently deadbolted; ADA compliant on exit only function egress; secondary doors.

Exterior View

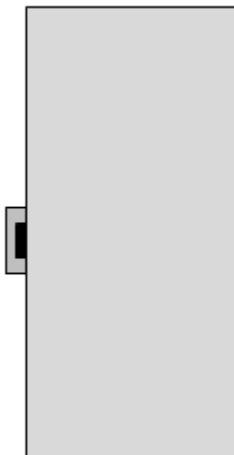


Interior View



Type X. Pedestrian door lock assemblies panic; permanently deadbolted; ADA compliant exit only fire rated panic hardware; secondary doors.

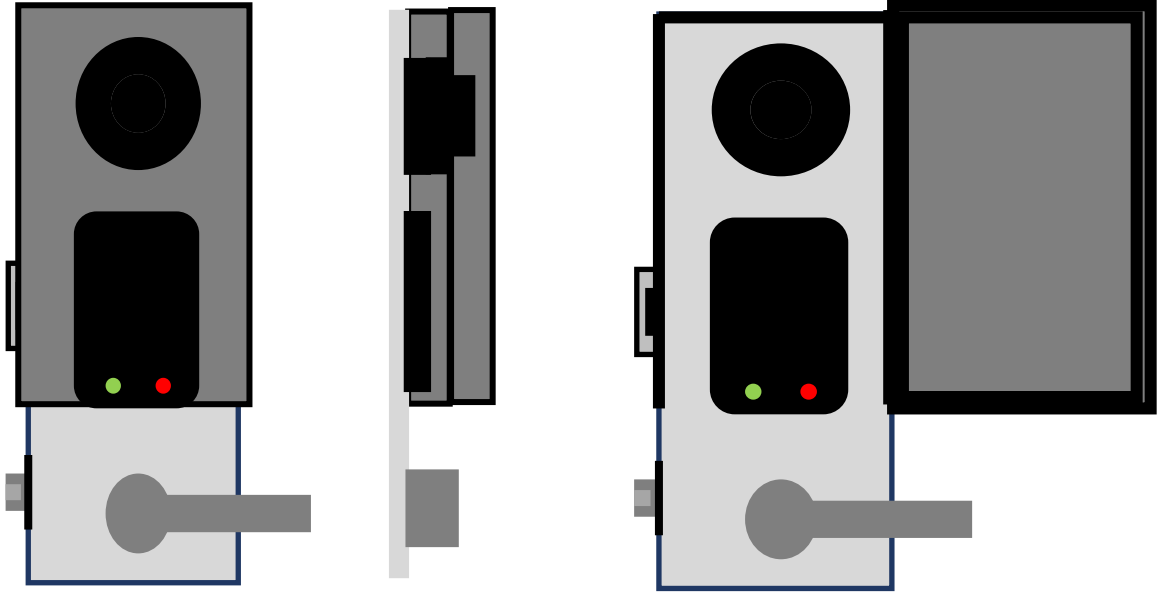
Exterior View



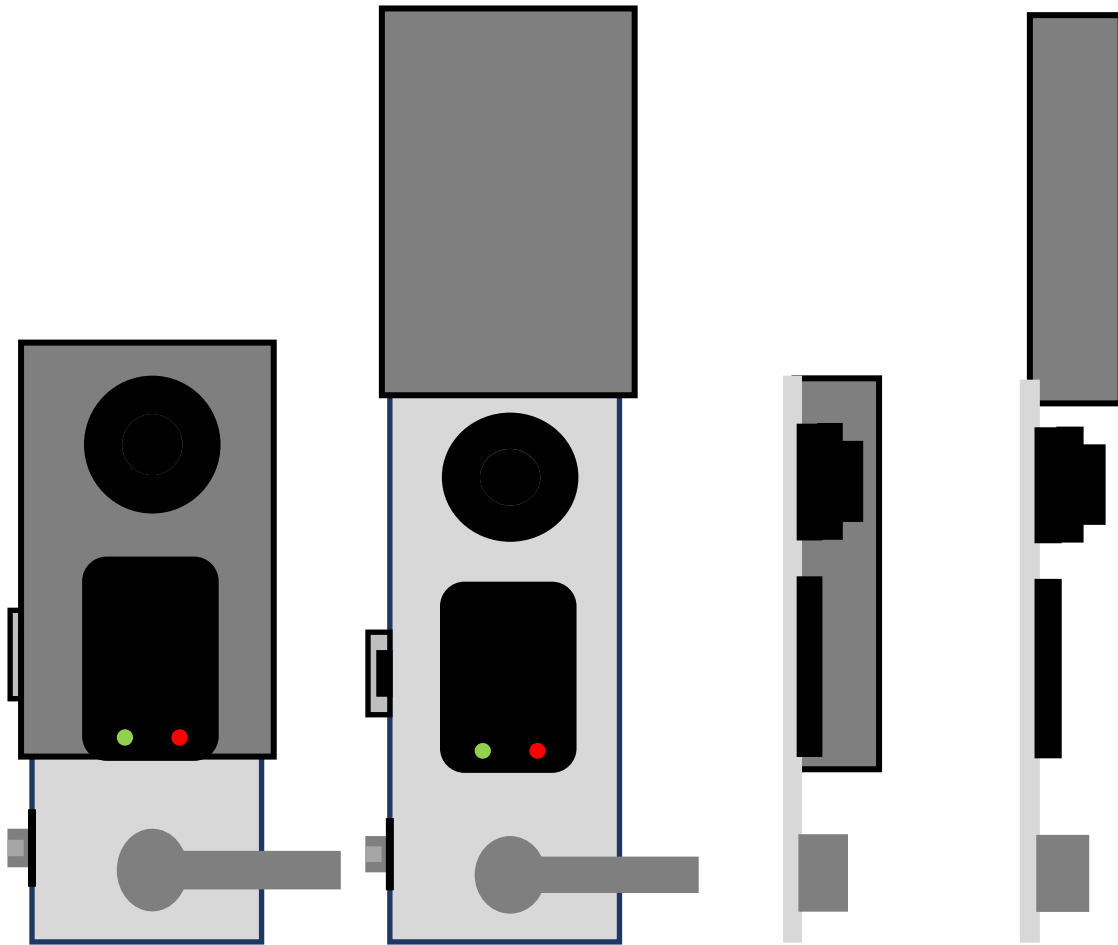
Interior View



Exterior use option. A protective cover that shields liquid crystal displays from damaging sunlight and prevents rain, dust and dirt from collecting on operational surfaces is required for types I, II, III IV, V & VI. The cover may slide up or open from the side allowing the operator full access to the security systems (combination lock & access control component if present).



Side opening exterior environmental cover design concept.



Top sliding exterior environmental cover design concept.