ANSI/SDI A250.14-2025 *Revision of ANSI/SDI A250.14-2023*

Hardware Preparation in Steel Doors and Steel Frames



Standards As Tough As Steel.™ SPONSOR Steel Door Institute

Approved March 4, 2025





This page left intentionally blank.

American National Standard Hardware Preparation in Steel Doors and Steel Frames

Secretariat
Steel Door Institute

Approved March 4, 2025

American National Standards Institute, Inc.

National Standard

American Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

> Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

> The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether they have approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

> The American National Standards Institute does not develop standards and will in no circumstances give any interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

> CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

Steel Door Institute 30200 Detroit Road, Cleveland, Ohio 44145-1967

Copyright © 2025 by Steel Door Institute All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

ANSI/SDI A250.14-2025

Contents

| 1. | Scope and Purpose1 |
|----|---------------------------|
| 2. | General Requirements1 |
| 3. | Definitions1 |
| 4. | SDI Document Disclaimers2 |

Figures

| 1 | Preparation of 1-3/4" Steel Doors and Steel Frames for Mortise Locks |
|----|--|
| 2 | Preparation of 1-3/4" Steel Doors and Steel Frames for Mortise Locks with Escutcheon Trim4 |
| 3 | Preparation of 1-3/8" Steel Doors and Steel Frames for Mortise Locks |
| 4 | Preparation of 1-3/4" Steel Doors and Steel Frames for Bored Locks |
| 5 | Preparation of 1-3/4" Steel Doors and Steel Frames for Manually Operated Lever Extension Flush Bolt7 |
| 6 | Preparation of 1-3/4" Steel Doors and Steel Frames for Manually Operated Lever Extension Flush Bolt Strike |
| 7 | Preparation of 1-3/4" Steel Doors and Steel Frames for Preassembled Door Locks9 |
| 8 | Preparation of 1-3/4" Steel Doors and Steel Frames for Bored Deadlatches |
| 9 | Preparation of 1-3/4" Steel Doors for Open Back Strikes 11 |
| 10 | Preparation of 1-3/4" Steel Doors with Wood Edges and Steel Frames for Bored Locks12 |
| 11 | Preparation of 1-3/4" Steel Doors with Wood Edges and Steel Frames for Double Locks |
| 12 | Preparation of 1-3/4" Steel Doors and Steel Frames for Double Locks with 4" Centerline Spacing of Combined or Interconnected Lock or Latch |
| 13 | Preparation of 1-3/4" Steel Doors and Steel Frames for Double Locks with 5-1/2" Centerline Spacing of Combined or Interconnected Lock or Latch |
| 14 | Preparation of 1-3/8" Steel Doors and Steel Frames for Bored Locks with Lever Handles16 |
| | |

Page

| 15 | Preparation of 1-3/4" Steel Doors and Steel Frames for Bored Locks with Lever Handles | 17 |
|----|--|----|
| 16 | Preparation of 1-3/4" Handed Steel Doors and Steel Frames for 4-1/2" Full Mortise Hinge | 18 |
| 17 | Preparation of 1-3/4" Non-Handed Steel Doors and Steel Frames for 4-1/2" Full Mortise Hinge | 19 |
| 18 | Preparation of 1-3/4" Handed Steel Doors and Steel Frames for 5" Full Mortise Hinge | 20 |
| 19 | Preparation of 1-3/4" Handed Steel Doors and Steel Frames for 5" Full Mortise Electrified Hinge | 21 |
| 20 | Preparation of 1-3/4" Handed Steel Doors and Steel Frames for 4-1/2" Full Mortise Electrified Hinge | 22 |
| 21 | Preparation of 1-3/4" Non-Handed Steel Doors and Steel Frames for 4-1/2" Full Mortise Electrified Hinge | 23 |
| 22 | Preparation of 1-3/4" Steel Doors and Steel Frames for Continuous Full Mortise Electrified Hinge | 24 |

Foreword (This Foreword is not part of American National Standard A250.14-2025)

This Standard was first published by the Door and Hardware Institute in a series of individual standards for wood and steel doors, and designated as A115. In 2001, the Builders Hardware Manufacturers Association reactivated the Joint Door and Hardware Standards Committee for the purpose of updating and promulgating the ANSI A115 standards for steel doors and frames. The development of the BHMA standard - ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames - was a joint effort by members of the Steel Door Institute, Window and Door Manufacturers Association, Door and Hardware Institute, Hollow Metal Manufacturers Association, Builders Hardware Manufacturers Association and the Canadian Steel Door Manufacturers Association. The effort was chaired by SDI Technical Committee member Allan Ashachik.

On March 24, 2020 BHMA forfeited the maintenance of ANSI/BHMA A156.115 to SDI's Accredited Standards Committee A250 via Project Initiation Notification (PINS) form submitted to and approved by ANSI. It has since been revised and published by SDI in 2023 and is now designated as ANSI/SDI A250.14.

ANSI/SDI A250.14 was revised in 2025 to include Continuous Full Mortise Electrified Hinge. The Steel Door Institute's Technical Data Series document, SDI-130 Electrified Hinge Preparations was withdrawn from the Series in light of this update.

Suggestions for improvement gained in the use of this standard are welcome. They should be sent to the Steel Door Institute, 30200 Detroit Road, Cleveland, OH 44145-1967.

The organizations that have approved this standard are part of the ANSI A250 Accredited Standards Committee, formed February 8, 1991, and are as follows:

Builders Hardware Manufacturers Association Canadian Steel Door Manufacturers Association D.H. Pace Company Door Control Services Door and Hardware Institute ESTM Technical Services, LLC GCI Consultants, LLC HMMA/Division of NAAMM Intertek MasterSpec Rosa D. Cheney AIA Steel Door Institute UL Solutions Vetrotech/Saint-Gobain The Accredited Standards Committee A250 TC-1 developed this standard, and had the following personnel at the time of approval:

Craig Ordmandy, *Chairman* J. Jeffery Wherry, *Manager*

| Organization Represented Allegion | Name of Representative |
|---|------------------------|
| Builders Hardware Institute | Karen Bishop |
| Canadian Steel Door Manufacturers Association | . Mike van Gevn |
| Ceco Door Products | Patrick Middleton |
| Curries Company | David Bill |
| Deansteel | . Claus Heide |
| De La Fontaine Industries, Inc. | Bené Bouchard |
| DCI | Justin Mueller |
| D.H. Pace | . Jerry Rice |
| Door Control Services | . Craig Ordmandy |
| Door and Hardware Institute | . James Gammon |
| ESTM Technical Services, LLC | . Michael Kolovich |
| GCI Consultants, LLC | . Mike Johnson |
| Hollow Metal Xpress (HMX) | . Adam Matusz |
| HMMA/Division of NAAMM | . Russell Tauscher |
| Intertek | . Justin Hendricks |
| MasterSpec | . Rick Howard |
| Mesker Door | . Mike Mehaffy |
| MPI | . David McConnell |
| Pioneer Industries | . Kamal Sheikh |
| Premier Steel Doors & Frames | . Jason Lisewski |
| Rosa D. Cheney AIA | . Ron Ray |
| Republic Doors and Frames | . Marilyn Latham |
| Steel Door Institute | . J. Jeffery Wherry |
| Stiles Custom Metal | . Steve Stiles |
| UL Solutions | . Michael Nicasio |
| Vetrotech/Saint-Gobain | . Kevin Norcross |

American National Standard

Hardware Preparation in Steel Doors and Steel Frames

1. Scope and Purpose

1.1 This standard covers all significant dimensional attributes for mounting common hardware products in steel doors and frames. All dimensions shall be as shown on the accompanying drawings.

1.2 This standard was developed to show only the most commonly used preparations for door hardware, and provide targets for standardization. Where multiple configurations are in common usage, separate drawings are provided. For other configurations, it is recognized that these standards may be used in part, or with exceptions, while still providing some degree of basic guidance and standardization.

2. General Requirements

2.1 Preparations covered by this standard are intended for use in doors 1-3/4 inches and 1-3/8 inches in thickness unless otherwise specified.

2.2 The center line of the lock in the door shall be located in reference to the center line of its strike.

2.3 Location of operable parts in accessible openings shall be between 34 and 48 inches unless otherwise specified. Consult local building codes and Authority Having Jurisdiction for exceptions.

2.4 Door Edge - Doors shall be furnished with a beveled lock edge unless otherwise specified.

2.5 Door Reinforcement - Doors shall be reinforced to support the requirements of the hardware application.

2.6 Tolerances for preparations are shown on individual drawings.

3. Definitions

3.1 Bored Locks Bored lock is used herein to designate locks having cylindrical shaped bodies which are mounted in holes bored in the door.

3.2 Dead-latch A spring-bolt latch in which the bolt is deadlocked against end pressure but may be retracted by either the knob or key.

3.3 Door Edge The vertical surfaces of a door to which hinges, locking or latching hardware is attached.

3.4 Beveled Edged A vertical door edge having a 1/8" in 2" slope from a plane perpendicular to the pull-side face of the door.

3.5 Door Face Surface of the door exposed to view when the door is closed.

3.6 Face Cut Out A piercing of the door face for hardware, lites, louvers or accessories.

3.7 Flush Bolt A locking device for the inactive leaf of a pair of doors that latches and unlatches either automatically or manually

3.8 Frame Frame is that portion of an opening which gives a finished appearance to a cutout in a wall and provides a square and plumb opening on which to hang a door.

3.9 Grout Guard A metal cover attached to a frame behind reinforcement for mortised or recessed hardware items, to prevent grout from entering the mounting holes. Also referred to as Dust Cover Guard, Masonry Guard, Mortar Guard, or Plaster Guard.

3.10 Head Horizontal frame member atop of opening or top of transom frame.

3.11 Hinge Face That face of the door viewed when observing the hinge knuckles on the door and frame.

3.12 Interconnected Lock A mechanically interconnected locking mechanism having a separate latch bolt or dead locking latch bolt and dead bolt designed for installation in round bored openings in the edge and face of a door.

3.13 Electric Grout Guard A metal cover provided to allow for the connection or termination of electrified hardware component wiring.

3.14 Lock Backset The horizontal distance from the door edge centerline measured at the door thickness, to the centerline of the lock hub or cylinder.

3.15 Lock Case The main body of a mortise lock containing the working mechanism which operates the latch bolt and deadbolt.

3.16 Lock Front A plate fastened to the edge of a door through which the bolt(s) pass.

3.17 Strike A mortised or surface mounted plate fastened to the door frame into which the bolts project.

3.18 Lock Support Component inside the door used to keep the hardware in alignment.

3.19 Mortise Lock A lock or latch fitting into a mortised cavity prepared in the edge of a door. The bolts are operated by knobs, levers, turns, thumb pieces, paddles or cylinders engaging the mortise lock or latch through holes prepared in the faces of the door.

3.20 Open Back Strike A lock strike for use on pairs of doors permitting the inactive leaf to be opened or closed independently, eliminating the need for an astragal or coordinator. **3.21 Preassembled Lock** A lock fitting into a notched cutout in a door.

3.22 Reinforcement Additional door material which provides structural support for hardware.

3.23 Square Edged Doors The lock and hinge edge of the door is 90 degrees to the face of the door. Also called Universal Edged Doors.

3.24 Stop Face That side of a door viewed when observing the stop side of a frame.

4. SDI Document Disclaimers

4.1 Tolerances

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 inches. Weight or force shall be \pm 2%. Angles shall be \pm 2 degrees. Where only minus tolerances are given, the dimensions are permitted to be exceeded at the option of the manufacturers.

4.2 Gauge vs. Thickness

While the term 'gauge' is no longer common for defining material thickness it is still used to specify doors and frames for ordering purposes. The term 'thickness' is used when defining the actual dimension of an item, and the term 'gauge' is used in the context of specifying a particular door or frame.

4.3 Drawing

It is recommended that the individual manufacturer's specifications be reviewed to confirm compliance with these drawings.







Square Edge

NOTES:

 For Doors 84" or less in Height, the Center of the Face Plate shall be 12" from the Top and Bottom Edges of the Door

For Doors Over 84" in Height, the Center of the Top Face Plate shall not be over 72" from the Floor

| STEEL | ANSI/SDI A250 | .14.005 |
|-----------|---------------------|---------|
| INSTITUTE | Date: March 2022 | Rev A |

Rev A

| The hinge backse from 3/16" to | et on doors v 1/4" | aries by | manufacturer, | |
|---|---------------------------|---------------------|---------------|--|
| The hinge backse from 5/16" to | et on frames 3/8". | varies by | manufacturer, | |
| Extra holes may be present in the reinforcement for tooling and weld fixturing | | | | |
| Manufacturers may offer a removable shim or embossed standoff which allows conversion of a standard weight preparation to a heavy weight butt hinge application. | | | | |
| Typical mortise depths are in accordance with ANSI/BHMA A 156.1 as follows: | | | | |
| standard weight bu | tt hinge : | 0.134 | | |
| leavy weight butt h | inge : | 0.180" | | |
| Tolerance ±0.005 | " unless othe | erwise sp | ecified. | |
| | | | | |
| | | | | |
| | | | | |
| | Notes | | | |
| | STEEL DOOR PASITUTE | ANSI/SDI A250 | .14.016 | |
| | | Date: March 2022 | Rev A | |
| | | | | |

| Note 1: The hinge backset on doors varies by ma from 3/16" to 1/4" | nufacture | er, |
|---|-------------------|--------|
| Note 2: The hinge backset on frames varies by ma from 5/16" to 3/8". | anufacture | er, |
| Note 3: Extra holes may be present in the reinforc for tooling and weld fixturing. | ement | |
| Note 4: Manufacturers may offer a removable shin embossed standoff which allows conv a standard weight preparation to a heavy weight butt hinge application. | n or ersion of | |
| Note 5: Typical mortise depths are in accordance ANSI/BHMA A 156.1 as follows: | with | |
| Standard weight butt hinge : 0.146" | | |
| Heavy weight butt hinge : 0.190" | | |
| Note 6: Tolerance ± 0.005" unless otherwise speci | ified. | |
| | | |
| Notes | | |
| ANSI/S | 3DI A250. | 14.018 |
| Date: March 2 | 2022 | Rev A |
| | | |

| The hinge backse from 3/16" to | et on doors v 1/4" | aries by | manufacturer, | |
|---|-------------------------------|---------------------|---------------------|---------|
| The hinge backse from 5/16" to | et on frames 3/8". | varies by | manufacturer, | |
| Extra holes may be present in the reinforcement for tooling and weld fixturing | | | | |
| Manufacturers may offer a removable shim or embossed standoff which allows conversion of a standard weight preparation to a heavy weight butt hinge application. | | | | |
| Typical mortise d ANSI/BHMA | epths are in A 156.1 as fo | accordar ollows: | nce with | |
| standard weight bu | tt hinge : | 0.134" | | |
| leavy weight butt h | ninge : | 0.180" | | |
| Tolerance ± 0.005 | 5" unless oth | nerwise sp | pecified. | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Notes | | | |
| | | | ANSI/SDI A250 | .14.020 |
| | | DOOR | Date: March 2022 | Rev A |
| | | | | |

AVAILABLE PUBLICATIONS

Specifications

| ANSI/SDI A250.6 | Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames |
|------------------|---|
| ANSI/SDI A250.8 | Specifications for Standard Steel Doors and Frames (SDI-100) |
| ANSI/SDI A250.14 | Hardware Preparation in Steel Doors and Steel Frames |
| SDI-108 | Recommended Selection & Usage Guide for Standard Steel Doors |
| SDI-118 | Basic Fire Door, Fire Door Frame, Transom/Sidelight Frame, and Window Frame Requirements |
| SDI-128 | Guidelines for Acoustical Performance of Standard Steel Doors and Frames |
| SDI-129 | Hinge and Strike Spacing |
| SDI-133 | Guideline for Specifying Steel Doors & Frames for Blast Resistance |
| SDI-136 | Guideline for Specifying Windstorm Products |
| Test Procedures | |
| ANSI/SDI A250.3 | Test Procedure & Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames |
| ANSI/SDI A250.4 | Test Procedure & Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors |
| ANSI/SDI A250.10 | Test Procedure & Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames |
| ANSI/SDI A250.13 | Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies for Protection of Building Envelopes (Not applicable for FEMA 320/361 or ICC-500 Shelters) |
| SDI-113 | Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door and Frame Assemblies |
| SDI-131 | Accelerated Physical Endurance Test Procedure for Steel Doors |
| Construction Det | ails |
| ANSI/SDI A250.11 | Recommended Erection Instructions for Steel Frames |
| SDI-110 | Standard Steel Doors & Frames for Modular Masonry Construction |
| SDI-111 | Recommended Details for Standard Steel Doors, Frames, Accessories and Related Components |
| SDI-122 | Installation Troubleshooting Guide for Standard Steel Doors & Frames |
| Miscellaneous Do | ocuments |
| SDI-112 | Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames |
| SDI-117 | Manufacturing Tolerances for Standard Steel Doors and Frames |
| SDI-124 | Maintenance of Standard Steel Doors & Frames |
| SDI-127 | Industry Alert Series (A-L) |
| SDI-134 | Glossary of Terms for Hollow Metal Doors and Frames |
| SDI-135 | Guidelines to Measure for Replacement Doors in Existing Frame Openings |

STEEL DOOR INSTITUTE

Standards As Tough As Steel.™ 5/2/2025 30200 DETROIT ROAD • CLEVELAND, OHIO 44145 440.899.0010 • www.steeldoor.org

MEMBERS OF THE STEEL DOOR INSTITUTE

CECO

AN ASSA ABLOY DOOR GROUP COMPANY 9159 Telecom Drive Milan, TN 38358-3425 (731) 686-8345 www.cecodoor.com

CURRIES

AN ASSA ABLOY DOOR GROUP COMPANY 1502 12th Street, P.O. Box 1648 Mason City, IA 50402-1648 (641) 423-1334 www.curries.com

DEANSTEEL MANUFACTURING CO.

931 S. Flores Street San Antonio, TX 78204-1406 (210) 226-8271 www.deansteel.com

DE LA FONTAINE INDUSTRIES, INC.

3 Normac Road Woburn, MA 01801 (781) 932-8663 www.delafontaine.com

DCI

7980 Redwood Avenue Fontana, CA 92336-1638 (909) 770-5700 www.dcihollowmetal.com

HOLLOW METAL XPRESS (HMX)

3440 Stanwood Boulevard Huntsville, AL 35811-9021 (256) 851-6670 www.HMXpress.com

MESKER DOOR 3440 Stanwood Boulevard

Huntsville, AL 35811-9021 (256) 851-6670 www.meskerdoor.com

MPI

319 North Hills Road Corbin, KY 40701 (606) 523-0173 www.metalproductsinc.com

PIONEER INDUSTRIES, INC. AN ASSA ABLOY DOOR GROUP COMPANY 111 Kero Road

Carlstadt, NJ 07072 (201) 933-1900 www.pioneerindustries.com

PREMIER STEEL DOORS & FRAMES

AN ASSA ABLOY DOOR GROUP COMPANY 2840 Sterlington Road Monroe, LA 71203 (318) 361-0796 www.trustpremier.com

REPUBLIC DOORS & FRAMES

155 Republic Drive McKenzie, TN 38201-0580 (731) 352-3383 www.republicdoor.com

STEELCRAFT

9017 Blue Ash Road Cincinnati, OH 45242 (513) 745-6400 www.steelcraft.com

STILES

AN ASSA ABLOY DOOR GROUP COMPANY 1885 Kinser Road Ceres, CA 95307 (209) 538-3667 www.stilesdoors.com