

American National Standard

Specifications for Standard Steel Doors and Frames (SDI-100)



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Approved April 6, 2023



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Standard Steel Doors and Frames
(SDI-100)

Secretariat
Steel Door Institute

Approved April 6, 2023
American National Standards Institute, Inc.

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Published by

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

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Printed in the United States of America

ANSI/SDI A250.8-2023

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Foreword (This Foreword is not part of American National Standard A250.8-2023)

The material contained in this document has been developed under the auspices of the ANSI A250 Committee. This committee has a diverse membership of users, producers, and general interest in addition to members of the Steel Door Institute. The committee has been charged with the development of standards, test methods, and other matters relating to steel doors and frames.

The current edition is a revision, and replaces the ANSI/SDI A250.8-2017 document. The contents have been updated to reflect changes that have taken place in the steel door and frame industry since the time of the previous publication.

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

The organizations of the Accredited Standards Committee A250 that have approved this standard are as follows:

Builders Hardware Manufacturers Association
Canadian Steel Door Manufacturers Association
Cedar Valley Associates
D.H. Pace Company
Door Control Services
Door and Hardware Institute
ESTM Technical Services, LLC
HMMA/Division of NAAMM
Intertek
MasterSpec
Ray and Associates
Steel Door Institute
UL Solutions
Vetrotech/Saint-Gobain

The Accredited Standards Committee A250 TC-1 developed this standard had the following personnel at the time of approval:

James Urban, Chairman
J. Jeffery Wherry, Secretary

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Vetrotech/Saint-Gobain.....	Kevin Norcross

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Specifications for Standard Steel Doors and Frames (SDI-100)

1 General

1.1 Scope

This specification for standard swinging steel doors and frames offers a variety of choices suitable for any commercial application. Specific performance levels of doors and frames are defined herein. SDI-108, *Recommended Selection and Usage Guide for Standard Steel Doors* shall be used as a guide. This Standard shall not act as an obstruction to the development of new, modified or improved products that meet the intent of this specification.

This specification covers sizes, design, materials, general construction requirements and finishing of standard steel doors and frames. SDI-100 is intended to define standard items not subject to variations. The products defined in this standard have demonstrated successful performance to established test procedures and physical usage (see Section 1.2).

It is the user's responsibility to coordinate the information contained herein with applicable building and/or fire code requirements.

1.2 Reference Documents

1.2.1 SDI Standards

- SDI-108-2023 *Recommended Selection and Usage Guide for Standard Steel Doors*
- SDI-111-2009 *Recommended Details for Standard Steel Doors, Frames, Accessories and Related Components*
- SDI-112-2008 (R23) *Zinc Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames*
- SDI-113-2013 (R18) *Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door and Frame Assemblies*

- SDI-117-2019 *Manufacturing Tolerances for Standard Steel Doors and Frames*
- SDI-118-2021 *Basic Fire Door, Fire Door Frame, Transom/Sidelight Frame, and Window Frame Requirements*
- SDI-124-2022 *Maintenance of Standard Steel Doors and Frames*
- SDI-134-2020 *Glossary of Terms for Hollow Metal Doors and Frames*

1.2.2 ANSI Standards

- UL 9 *Standard for Fire Tests of Window Assemblies*, 8th Edition, Dated July 2, 2009, including revisions through March 20, 2020
- UL 10B *Standard for Fire Tests of Door Assemblies*, 10th Edition, February 7, 2008, revisions up to and including May 4, 2020
- UL 10C *Standard for Positive Pressure Fire Tests of Door Assemblies*, 3rd Edition, June 9, 2016, revisions up to and including May 27, 2021
- UL 1784, *Standard for Air Leakage Tests of Door Assemblies and Other Opening Protectives*, 4th Edition, February 17, 2015, revisions up to and including February 21, 2020
- NFPA 80-2022 *Standard for Fire Doors and Other Opening Protectives*
- NFPA 252-2022 *Standard Methods of Fire Tests of Door Assemblies*
- NFPA 257-2022 *Standard Methods of Fire Tests of Window Assemblies*
- ANSI/SDI A250.3-2019 *Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames*

- ANSI/SDI A250.4-2022 *Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors*
- ANSI/SDI A250.6-2020 *Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames*
- ANSI/SDI A250.10-2020 *Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames*
- ANSI/SDI A250.11-2022 *Recommended Erection Instructions for Steel Frames* (Formerly SDI-105)
- ANSI/BHMA A156.115-2016 *Hardware Preparation in Steel Doors or Steel Frames*

1.2.3 ASTM Standards

- ASTM A1008-2021a *Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable*
- ASTM A568-2019a *Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for*
- ASTM A1011-2018a *Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength*
- ASTM A653-2022 *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*
- ASTM A879-2022 *Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface*
- ASTM A924-2022 *Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process*

1.3 Approval Drawings and Hardware Schedules

It is intended that approval drawings will not be required for these items and that the manufacturer's published details, together with this standard, will provide all the needed informa-

tion. When specified, shop drawings shall be submitted for approval prior to manufacturing and/or delivery of product to the site. They shall show elevations of each door design, door construction details, hardware locations, dimensions, and shapes of materials, anchorage and fastening methods, door frame types and details, and finish requirements. SDI-111, *Recommended Details for Standard Steel Doors, Frames, Accessories and Related Components* and SDI-134 *Glossary of Terms for Hollow Metal Doors and Frames* shall be used as guides in the development of the necessary product schedule.

1.4 Classification — Level, Performance, Model

For each of the following levels and models, doors, frames, frame anchors, and hardware reinforcements shall be provided to meet the requirements of the performance levels indicated below. The material used in manufacturing these products and components shall comply with Tables 2, 3, and 4 of this document. The physical performance levels are determined by testing assemblies in accordance with ANSI/SDI A250.4, *Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcements*. See Section 2.3.1.1 and 2.3.1.2 for a description of Full Flush and Seamless.

Level 1 and Physical Performance Level C

Standard-duty 1- $\frac{3}{8}$ " (34.9 mm) and 1- $\frac{3}{4}$ " (44.5 mm)

Model 1 – Full Flush

Model 2 – Seamless

Level 2 and Physical Performance Level B

Heavy-duty 1- $\frac{3}{4}$ " (44.5 mm)

Model 1 – Full Flush

Model 2 – Seamless

Level 3 and Physical Performance Level A

Extra Heavy-duty 1- $\frac{3}{4}$ " (44.5 mm)

Model 1 – Full Flush

Model 2 – Seamless

Model 3 – Stile and Rail