AMERICAN NATIONAL STANDARD

STANDARD FOR ROLLING SHEET DOORS

ANSI/DASMA 207-2012

Door & Access Systems Manufacturers' Association, International

Sponsor:

DASMA
Door & Access Systems Manufacturers Association International

1300 Sumner Ave
Cleveland, Ohio 44115-2851

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Suggestions for improvement of this standard will be welcome.
They should be sent to the Door & Access Systems Manufacturers' Association, International.

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Foreword (This foreword is included for information only and is not part of DASMA 207-2012, *Standard for Rolling Sheet Doors.*)

This standard was developed by the Technical Committee of the DASMA Rolling Door Division. It incorporates years of experience in designing and testing non-fire-rated rolling doors.

The DASMA Rolling Door Division approved the standard as a DASMA standard on January 28, 2008. The standard was recognized by the ANSI Board of Standards Review as an American National Standard on July 3, 2012.

DASMA recognizes the need to periodically review and update this standard. Suggestions for improvement should be forwarded to the Door & Access Systems Manufacturers' Association, International, 1300 Sumner Avenue, Cleveland, Ohio, 44115-2851.

ANSI/DASMA 207-2012

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Standard for Rolling Sheet Doors

1.0 Scope

1.1 This standard defines minimum design and performance specifications for non-fire rated rolling sheet doors.

1.2 This standard for rolling sheet door assemblies shall be intended to cover commercial and industrial type warehouses, factories, self storage and other facilities.

1.3 This standard is not intended to cover doors such as rigid, folding or multi-leaf sectional type doors, rolling fire doors, rolling doors, perforated slat construction, or special applications. Rolling sheet doors intended for frequent use should be designed for high cycle operation. Refer to Section 11.1.2.

1.4 Without limitation, DASMA does not represent or imply that this standard relates to any component or system other than the rolling sheet doors expressly identified and described herein.

1.5 See informational statements in Appendix A on important design and operation information.

2.0 Definitions.

2.1 **Axle Assembly**: A horizontal member at the head of the opening that supports the curtain and contains the counterbalance spring(s).

2.2 **Bottom Bar:** A reinforcing member at the lower edge of the door curtain assembly. It may be provided with an astragal or sensing edge.

2.3 **Brackets:** Support members above the top of the wall opening to which the axle assembly is attached.

2.4 **Counterbalance Assembly:** An assembly consisting of torsion springs, spring anchors, and a shaft, which is positioned on the axle assembly.

2.5 **Counter Shutter:** A door used to close an opening, which closes on a counter-type sill.

2.6 **Curtain:** An assembly of curtain panels seamed together.

2.7 **Cycle:** An action on the door from the fully closed position, to the fully open position, and returned to the fully closed position.

2.8 **Guide:** Vertical assembly in which the curtain travels and that is fastened to the jamb, retaining the edges of the door curtain and closing the space between the curtain edges and the jamb.

2.9 **Hood:** A sheet metal housing that mounts horizontally over the coiled curtain and brackets, serving as a cover for the coiled curtain and closing the door space between the door coil and the header.

2.10 **Hood Baffle:** A flap of material with one end secured to the interior of the hood and the other end resting on the curtain, and designed to retard air infiltration over the top of the curtain and through the hood.

2.11 **Interlock, External:** An electrical switch to prevent motor operation if locking device is engaged.

2.12 **Rolling Sheet Door:** A vertically operating, coiling door typically used in

commercial, industrial or self-storage applications, with a curtain consisting of formed metal sheets seamed together.

2.13 Spring Anchor: A component in a counterbalance assembly, that holds a spring in place while it is under tension.

2.14 Stops: Bars mounted at top of guides to prevent bottom bar from traveling out of the guides when the curtain is fully raised.

2.15 Tensioning Device: A component attached to the counterbalance shaft, which controls the spring tension as it is locked to the bracket.

2.16 Torsion Spring: A helical wound spring in a counterbalance assembly, used to counterbalance the curtain.

2.17 Wind Bar: Channel or bar welded inside guide groove, which engage windlocks under wind load.

2.18 Windlock: A component attached at predetermined intervals to sheet ends to prevent curtain from leaving the guides under wind load, and which is used in conjunction with wind bars inside the guides.

3.0 General

3.1 Wind Loads

3.1.1 Door system shall be designed to withstand a minimum wind load as required by the authority having jurisdiction over the geographic location where the door is to be installed. When required by the authority having jurisdiction, structural tests shall be in accordance with ANSI/DASMA 108 or other accepted means required by the authority having jurisdiction.

3.1.2 Where resistance to windborne debris is required by the authority having jurisdiction over the geographic location where the door is to be installed, a door system shall meet the requirements of ANSI/DASMA 115 or other accepted means as required by the authority having jurisdiction.

4.0 Material Thickness

4.1 Metal gauge shall comply with information shown in DASMA TDS-154.

5.0 Guide Assemblies

5.1 Guide assemblies shall contain the curtain edges throughout the door operation and under the required wind load.

5.2 Guide assembly design shall allow for installation variances in the distance between left and right guides of ±1/8 inch (3 mm) within the specified value provided by the door manufacturer.

5.3 Guide assemblies shall be constructed to support the wind loads transmitted by the curtain.

5.4 Guide assemblies shall include stops on the guides to ensure the rolling sheet door opens to a designated position.

6.0 Curtains

6.1 Curtain shall coil around the axle assembly without binding or separation.

6.2 Curtains shall be designed to resist lateral motion.

6.3 Where windlocks are required, windlock construction, material and attachment to curtain shall be adequate to resist wind load.

6.4 When subjected to the provisions of Section 3.1, curtain performance shall be such that the door shall remain operable after removal of the wind load.

6.5 Steel curtain shall conform to ASTM A653/A653M, G40 minimum zinc coating, or equivalent, with grade chosen by manufacturer to meet performance requirements set forth herein. Curtain may be painted.

6.6 For other materials and finishes, contact manufacturer for availability.

6.7 Insulating material shall meet requirements established by the authority having jurisdiction for flame spread and smoke development.

7.0 Bottom Bars

A bottom bar may incorporate an astragal or sensing edge.

8.0 Locking Devices

8.1 A curtain or a bottom bar may be designed to incorporate locks that engage at one or both sides.

8.2 If a locking mechanism is incorporated on a motor operated door, one of the following shall be installed:

8.2.1 Guide mounted external interlock.

8.2.2 An operator with the ability to sense either torque or starting current to the motor.

9.0 Brackets

9.1 Brackets shall be designed to support the curtain, the bottom bar and the axle assembly.

10.0 Hoods and Hood Baffles

10.1 Hoods, when provided, shall be constructed with gauge thickness in accordance with DASMA TDS-154.

10.2 A hood, or hood fasteners, shall not be in contact with the curtain during any position of the door.

10.3 A hood baffle (when required) shall maintain full-width contact with the curtain when the door is closed.

10.4 A hood baffle shall not hinder operation of the door.

11.0 Axle Assemblies

11.1 Torsion Springs

11.1.1 Helical wound spring wire shall comply with ASTM-A229 or equivalent.

11.1.2 Springs shall be designed for a minimum of 10,000 cycles of operation. Higher cycle life may be specified.

11.2 Spring Anchors

11.2.1 Spring anchors shall be designed to withstand the radial and lateral forces exerted by the torsion spring to properly retain the spring when fully wound or unwound and allow the application of torque.

12.0 Tensioning Device

Tensioning device and locking mechanism shall be designed with sufficient strength to withstand the maximum torque from torsion springs, and/or winding devices.

12.1 Tensioning device and locking mechanism shall be designed with sufficient strength to withstand the maximum torque from torsion springs, and/or winding devices.

13.0 Operation

13.1 A door normally operated by chain hoist shall not require more than 35 pounds (156 N) of force to operate the door.

13.2 A door normally operated by using a crank shall not require more than 25 pounds (111 N) of force to operate the door.

13.3 A door normally operated by manually pushing up the door shall not require more than 30 pounds (134 N) of force to operate the door. Recommended maximum door height is 10 feet.

13.3.1 A door required to be ADA compliant shall not require more than 5 pounds (22 N) of force to operate the door.

14.0 Installation and General Operation

14.1 The door manufacturer shall furnish standard details and instructions for proper installation and general operation. Such instructions shall include warnings relative to the installation and general operation of the door.

15.0 Maintenance

15.1 The door manufacturer shall furnish a list of components requiring regular maintenance, with instructions on and frequencies for such maintenance.

16.0 Labels

16.1 Each door shall be labeled to identify the name and address of the door manufacturer.

16.2 DASMA labels RDD-201 and RDD-204 shall be placed on the door as described in TDS-267.

16.2.1 Labels in accordance with the applicable provisions of ANSI-Z535.1, ANSI-Z535.3, ANSI-Z535.4, shall be placed on the door.

Referenced Standards

ANSI-Z535.1, *Safety Color Code*

ANSI-Z535.3, *Criteria for Safety Symbols*

ANSI-Z535.4, *Product Safety Signs and Labels*

ANSI/DASMA 108, *Standard Method for Testing Garage Doors and Rolling Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference*
ANSI/DASMA 115, *Standard Method for Testing Garage Doors and Rolling Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure*

ASTM-B221, *Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire*

ASTM-A229, *Standard Specification for Steel Wire, Oil-Tempered for Mechanical Springs*

ASTM-A240, Standard *Specification for Heating-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*ASTM-B209, *Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate*

ASTM A653/A653M, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

DASMA TDS-154, *Steel Gauge Chart*

DASMA TDS-251, *Architects and Designers Should Understand Loads Exerted by Overhead Coiling Doors*

DASMA TDS-267, *Rolling Door Labels*

DASMA TDS-272, *Rolling Door Counterbalancing*
DASMA TDS-277, *Metal Coiling Slat Door Terminology*

Appendix A: Informational Statements

A.1. Rolling sheet doors with windlocks cannot be operated when wind load engages the windlocks, due to the sliding friction of the curtain within the guides. Contact the manufacturer for special requirements.

A.2. Loads are imposed onto the building structure from two sources: Wind load and door weight. Wind loading can produce substantial catenary forces in rolling sheet doors as a result of the locking action of the curtain edges within the guides. The jambs must be designed to withstand these loads. These loads are in addition to those created by the direct wind pressure and weight of the door assembly. The magnitude and direction of these loads should be obtained from the manufacturer. DASMA Technical Data Sheet TDS-251 may be used to state these loads.

A.3. After being subjected to wind loading, rolling sheet doors may retain some curvature in the curtain, particularly on narrow doors.

A.4. Calculations for overall performance and pass/fail prediction of the door system are well established. Detailed stresses in the curtain sheets under wind loads cannot be calculated accurately since the large-deflection of these parts invalidates the assumptions used to derive common engineering formulae.

DASMA – The Door & Access Systems Manufacturers Association, International – is North America's leading trade association of manufacturers of garage doors, rolling doors, garage door operators, vehicular gate operators, and access control products. With association headquarters based in Cleveland, Ohio, our 90 member companies manufacture products sold in virtually every county in America, in every U.S. state, every Canadian province, and in more than 50 countries worldwide. DASMA members' products represent more than 95% of the U.S. market for our industry.

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