

ANSI/SDI A250.4

Revised July 2024

Test Procedure & Acceptances Criteria for – Physical Endurance for Steel Doors, Frames & Frame Anchors



ANSI/SDI A250.4

- The focus of this standard is on commercial hollow metal doors, frames, and their applicable hardware and how it can be used by design professionals in both the selection and specification of commercial door openings
- First adopted as an SDI Standard in 1980 as the first attempt to replicate on-site door usage in an operable test environment on doors, frames, and hardware
- Adopted as **ANSI A156.4** in 1994 and then re-published and adopted as **ANSI A250.4** in 1999

Description of A250.4

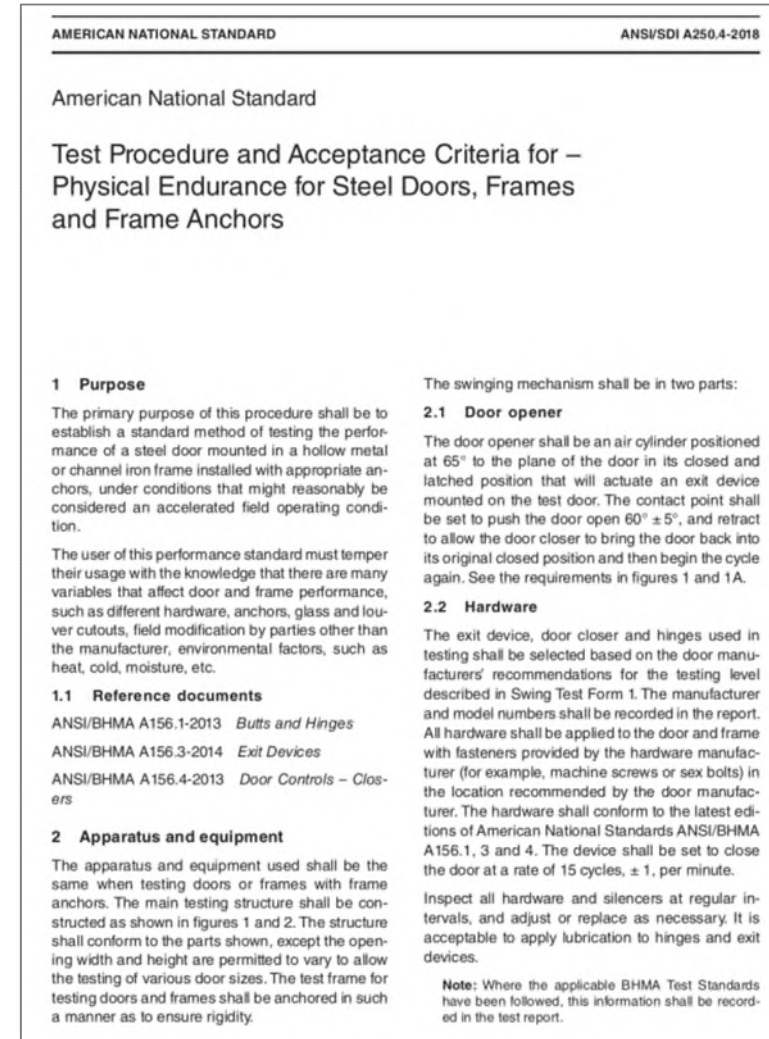
This standard provides manufacturers with:

- 1 A uniform method of evaluation for lifecycle testing of components and assemblies
- 2 Multiple testing procedure methods
- 3 Cycle tests at designated level of cycles
- 4 Twist tests at designated cycle points
- 5 Operable tests with door cycles using commercial hinges, exit device, and closer
- 6 How length of cycles tested relate to use and application
- 7 Proper guidance for design professionals in specifying commercial door openings

A250.4 Overview - Performance Test

ANSI/SDI A250.4 establishes a performance test method for commercial hollow metal openings through replicating field operating conditions for:

- Operable hardware
- Door swings opens $60^{\circ} \pm 5^{\circ}$
- Cycles 15 cycles / minute
- Twist tests at predefined intervals



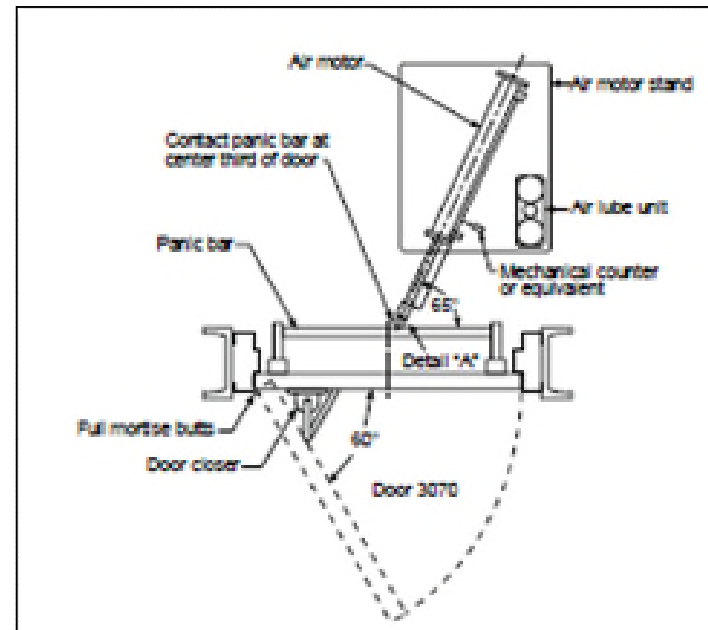
A250.4 Overview - Performance Test

Test Apparatus:

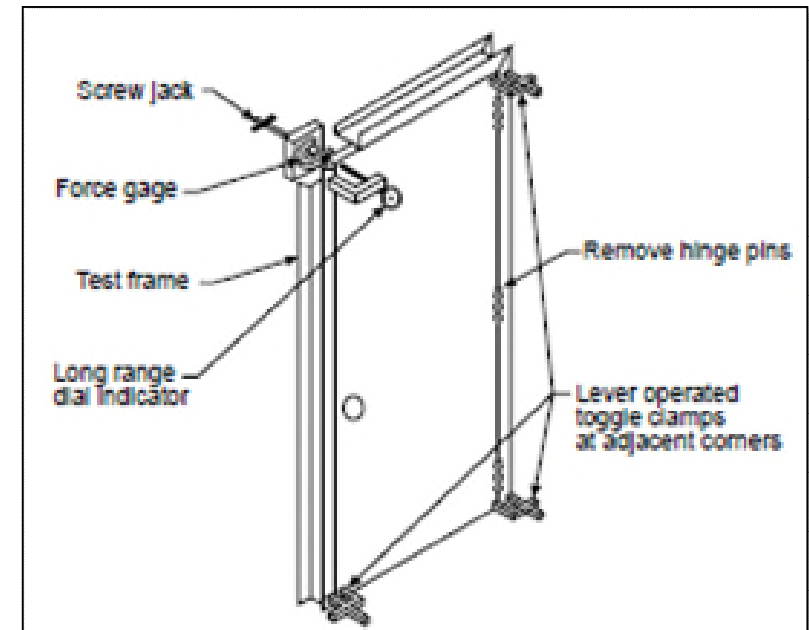
- Test fixture with pneumatic cylinder to cycle the door at designated rates

Two-part testing:

- Cycle Test
- Twist Test



Cycle Test

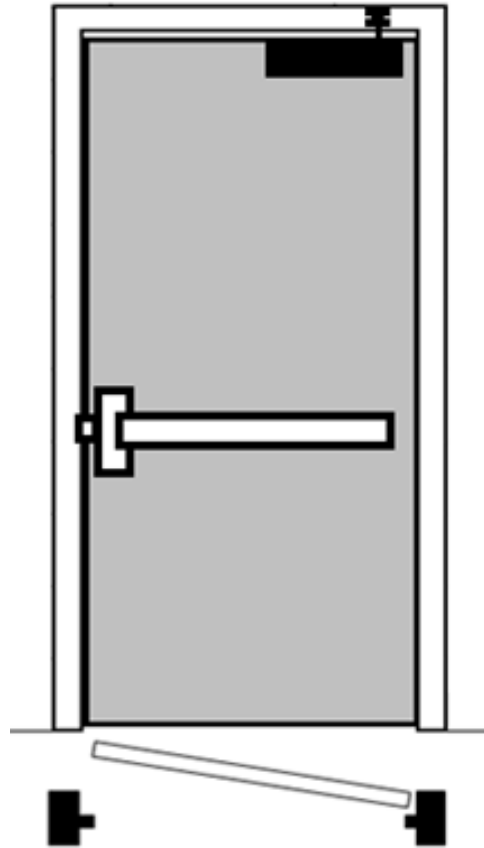


Twist Test

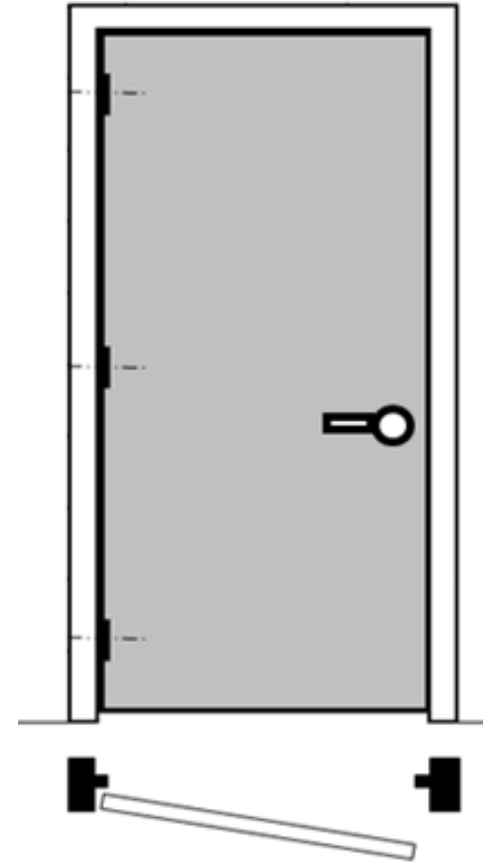
A250.4 Overview - Performance Test

Operable Opening:

- Exit device
- Door closer
- Hinges



Push Side of Door



Pull Side of Door

A250.4 Overview - Performance Test

Test Specimen Door:

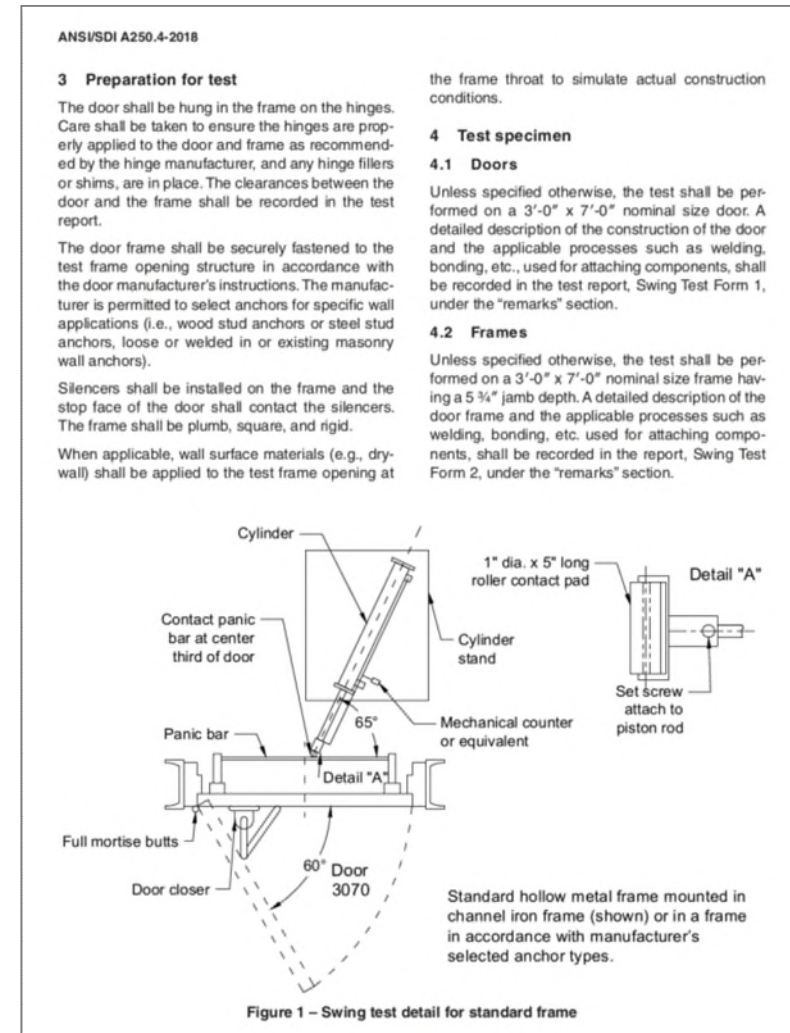
- 3070 nominal size door
- Production doors are used
- Detailed description of the construction

Test Specimen Frame:

- Production frames are used
- Detailed construction description
- KD or Welded

Test Specimen Anchors:

- Snap-in or welded



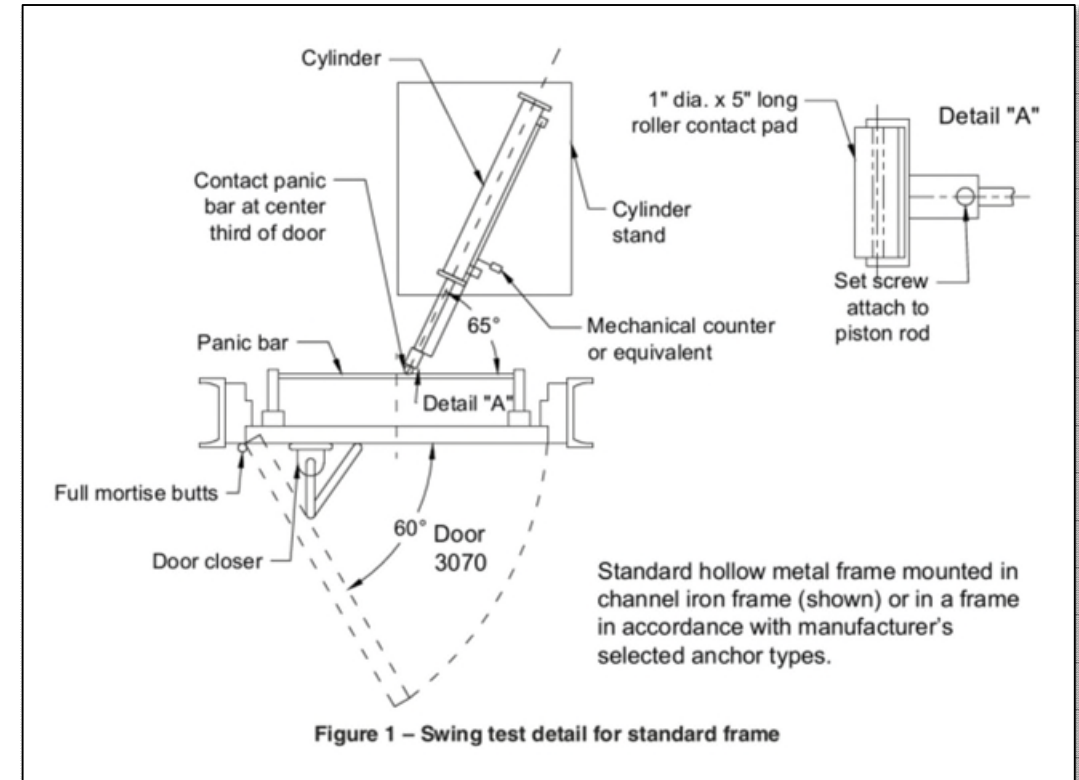
A250.4 Overview - Swing Test

Purpose:

- Full-sized operable door to simulate actual applications
- Evaluate door panel degradation

Cycles:

- Level “A” = 1,000,000 cycles
- Level “B” = 500,000 cycles
- Level “C” = 250,000 cycles



*Refer to **ANSI A250.8** for guidance in selecting the correct cycle levels in relationship to opening use, application and abuse.*

A250.4 Overview - Twist Test

Purpose:

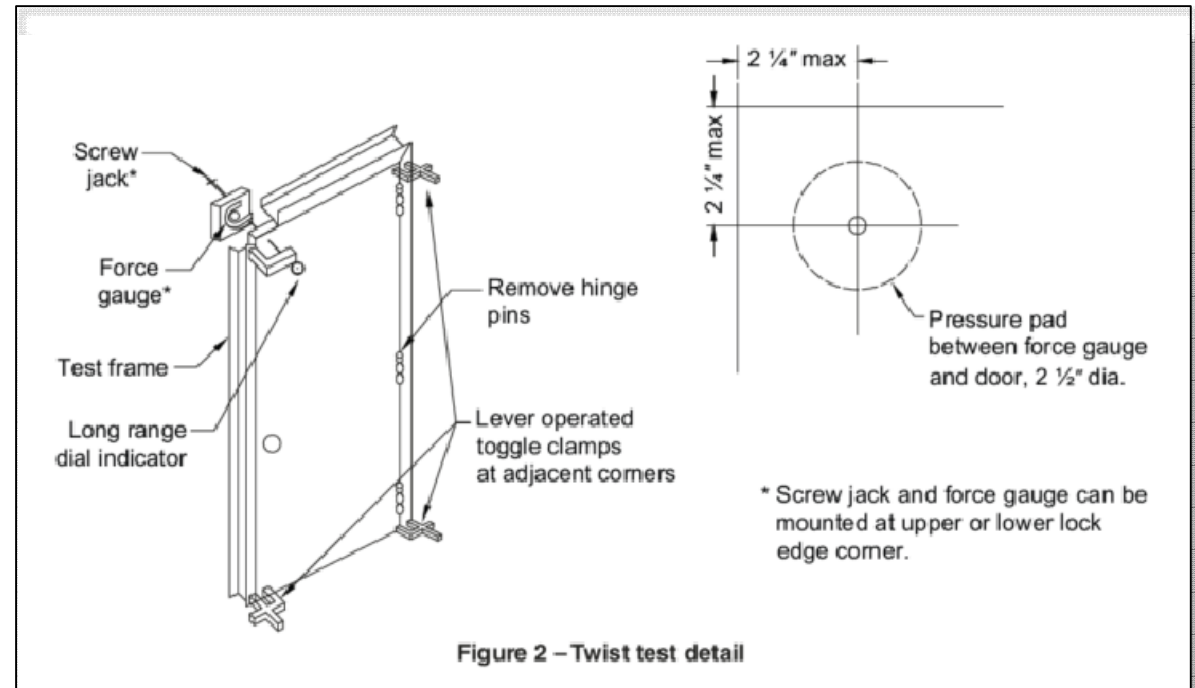
- Simulate abuse
- Evaluate door panel degradation

Conducted at:

- 25,000 cycle intervals for the first
- 100,000 cycles and at 50,000 cycle intervals for the balance of the test

Load pressure:

- Loads in 30 lb. increments
- Max 300 lb. load applied
- Reduce load in 30 lb. increments



SDI Member Companies

