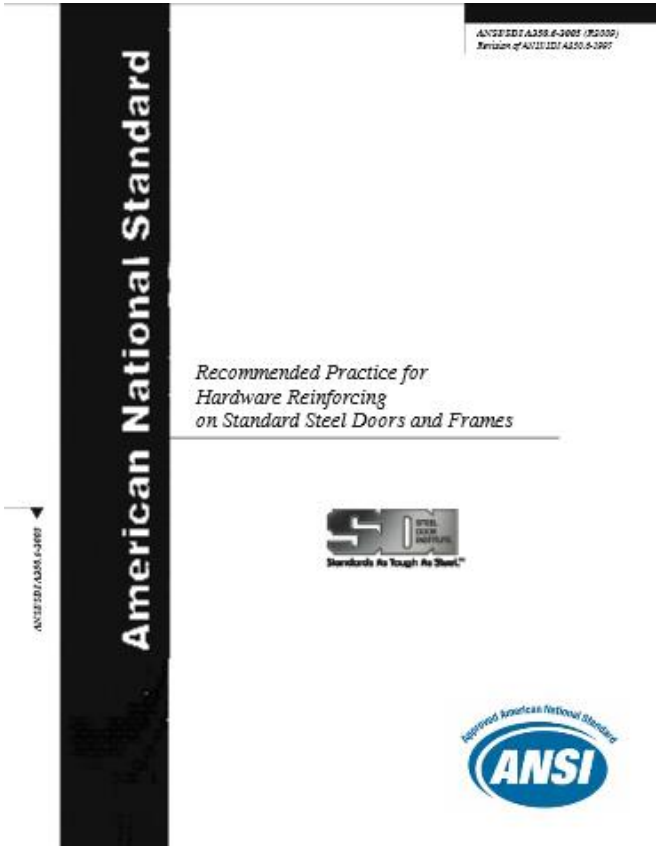
ANSI/SDI A250.6

Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames



STEEL DOOR INSTITUTE

Standards As Tough As Steel.™

Purpose of A250.6

A250.6 serves as a guide to door and frame reinforcement, field preparation, and the installation of door hardware.

This standard should be referenced by hollow metal door installers to ensure doors are properly installed.

Doors with properly reinforced and installed hardware will function better and last longer than those without.

Overview of A250.6

For a screw to effectively secure the hardware, it must have three threads within the door. But a standard 18 gauge door is not quite thick enough for two threads.

These doors and frames require reinforcements or extrusions so three threads are within the door. Failure to do so can cause the hardware to sag or possibly pull out from the door.

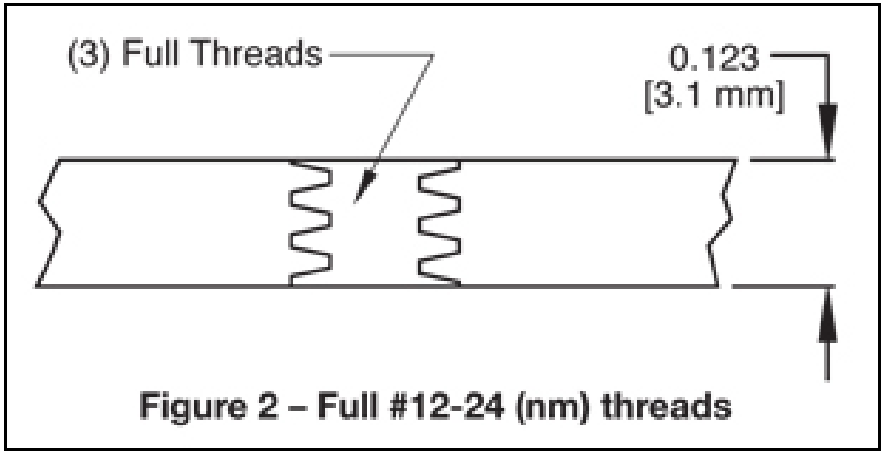
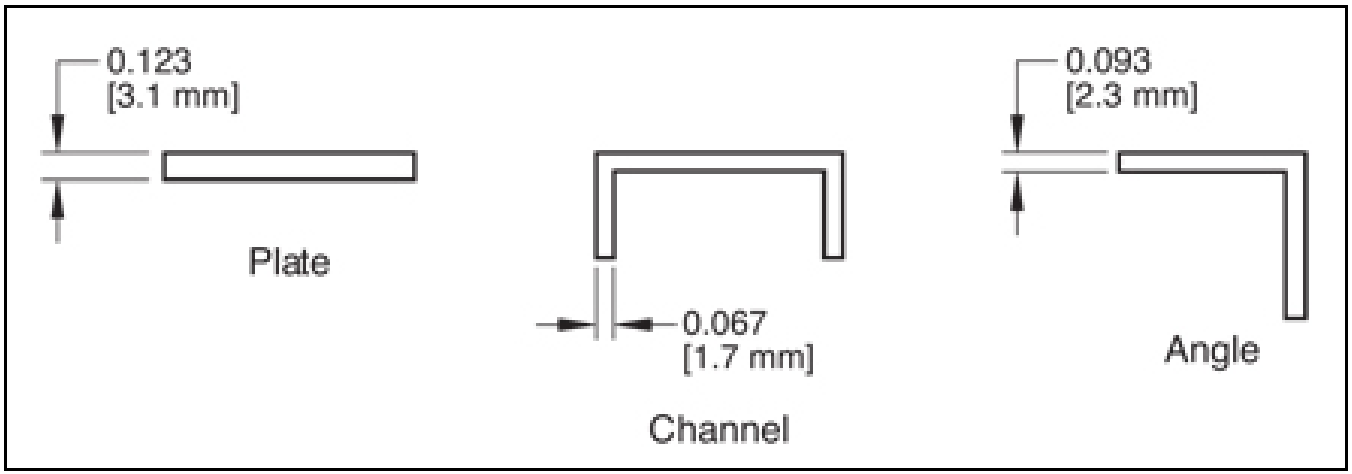


Figure 2 – Full #12-24 (nm) threads

Overview of A250.6

Among other things, A250.6 covers the reinforcement and extrusion of doors and frames.

Reinforcements are when a plate, channel or angle is attached to the door or frame to ensure the screws are properly secured.



Overview of A250.6

Another method of properly securing screws is extrusion. This is where a hole is punched in the door or frame and an extrusion tool is pressed into the hole. This causes that part of the metal door to expand, making it wide enough for three screw threads.

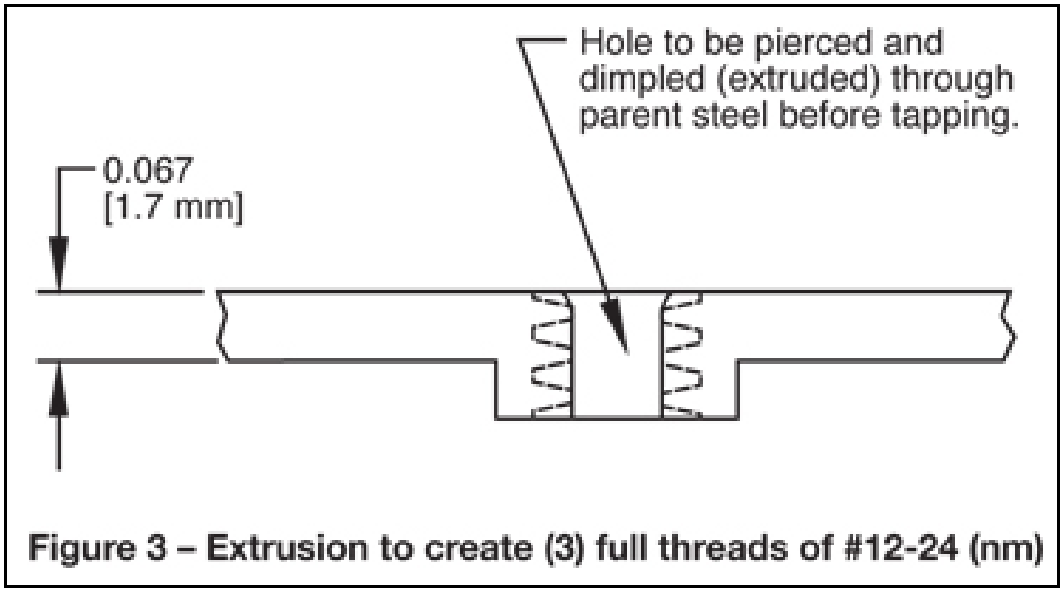


Figure 3 – Extrusion to create (3) full threads of #12-24 (nm)

Overview of A250.6

Table 1 shows the minimum reinforcing thicknesses for commonly installed hardware. An installer should reference this table before mounting hardware.

For example, if they were installing a mortise lock or deadbolt into an 18 gauge door they would see that a 14 gauge reinforcement is suggested. Therefore the installer would need to reinforce it so the 18 gauge door is thick enough for three threads.

Hardware Item	Door			Frame		
	inches	mm	MSG No. (6)	inches	mm	MSG No. (6)
Mortise Hinge 1-3/8" [34.9 mm] Door (1)	0.093	2.3	12	0.093	2.3	12
Mortise Lock or Deadbolt (1)	0.067	1.7	14	0.067	1.7	14

Overview of A250.6

The size of the pilot hole is also important to the security of the hinges. It is easier to tap an oversize pilot hole than one of the correct size necessary for maximum strength. But oversized holes will not ensure adequate product performance.

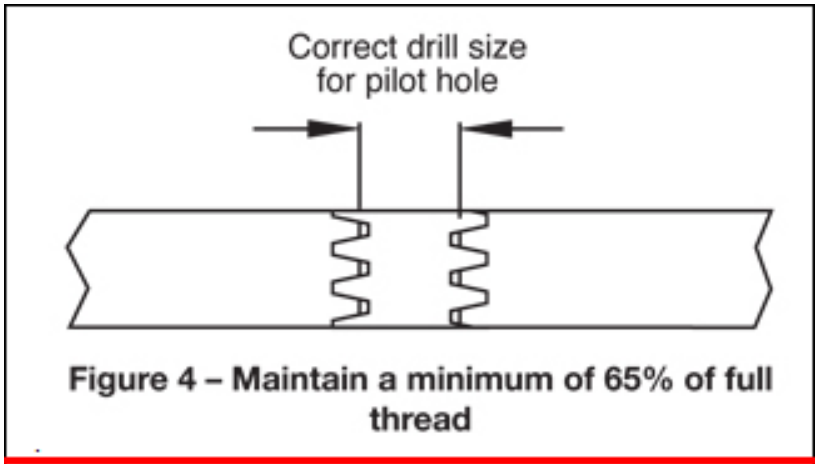


Figure 4 – Maintain a minimum of 65% of full thread

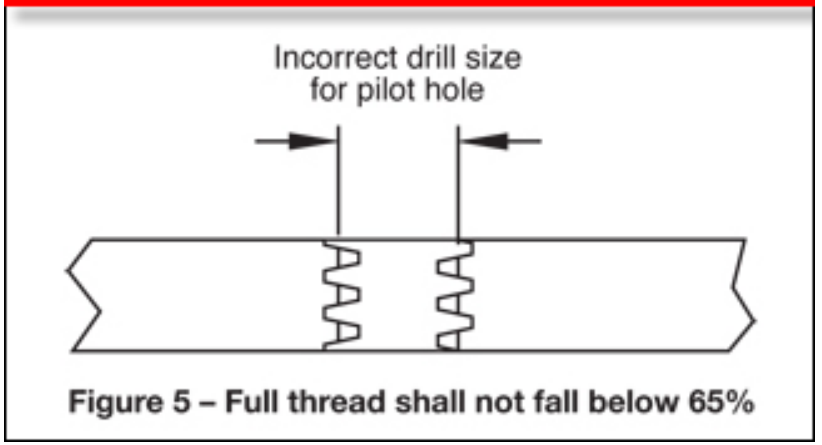
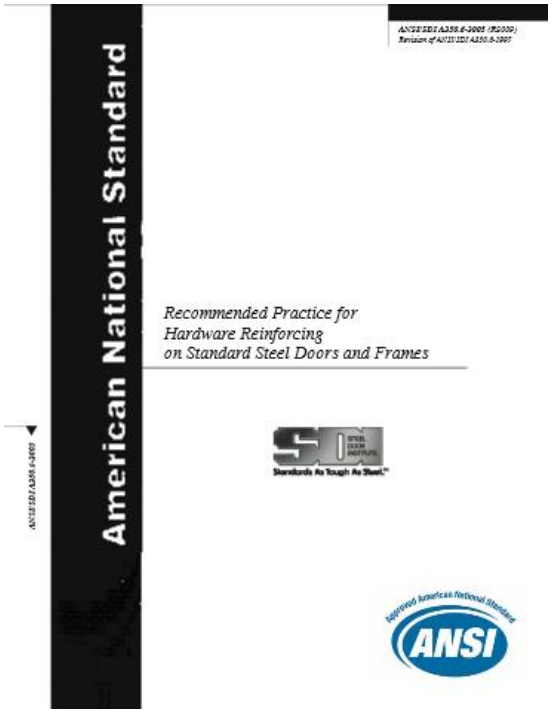


Figure 5 – Full thread shall not fall below 65%

Overview of A250.6

A250.6 also covers:

- Through-bolting
- Sheet metal screws
- Continuous hinges



Conclusion

It has been the experience of the Steel Door Institute that most failures of hardware attachments have been caused by improper field installation rather than insufficient reinforcement.

Specification writers must be aware that proper installation methods must be followed for a door to perform to its potential.

SDI Member Companies

Ceco Door
ASSA ABLOY

CURRIES
ASSA ABLOY

DEANSTEEL

DCI HOLLOW METAL ON DEMAND

HMX

MESKER

MPI

Republic doors · frames

PIONEER DISCOVER MORE

Security Metal Products
ASSA ABLOY

STEELCRAFT
An Allegion brand

SDI STEEL DOOR INSTITUTE

Standards As Tough As Steel.™