

TABLE 5—TENSILE PULL-OUT CAPACITY OF SCREW CONNECTIONS, pounds-force<sup>1,2,3,4,5</sup>

SCREW TYPE	SCREW SIZE	HEAD STYLE <sup>9</sup>	DESIGN THICKNESS OF MEMBER NOT IN CONTACT WITH SCREW HEAD (in.)							
			0.048	0.060	0.075	0.105	1/8"	3/16"	1/4"	5/16"
<b>ALLOWABLE STRENGTH (ASD)</b>										
1	#10-16	PPH	136	193	236	307	297	-	-	-
2A, 2B	#10-16	HWH	136	193	236	307	297	-	-	-
3	#10-24	PWH	122 <sup>8</sup>	186 <sup>7</sup>	250 <sup>6</sup>	415 <sup>6</sup>	546 <sup>7</sup>	-	-	-
4, 5	#12-14	HWH	132	205	264	328	510	665	-	-
6	#12-14	PUFH	132	205	264	328	510	665	-	-
7	#12-24	HWH	96 <sup>8</sup>	165 <sup>7</sup>	224 <sup>6</sup>	381 <sup>6</sup>	507 <sup>7</sup>	891 <sup>7</sup>	1020	1020
8	1/4-14	HWH	131	207	255	342	561	899	-	-
9, 10	1/4-20	HWH	-	204 <sup>6</sup>	260 <sup>6</sup>	423 <sup>6</sup>	524 <sup>7</sup>	914 <sup>7</sup>	1044	1206
11	5/16-18	HWH	-	-	-	520	707	-	-	-
12A, 12B	5/16-24	HWH	-	-	-	459	637	724	1189	1424
<b>DESIGN STRENGTH (LRFD)</b>										
1	#10-16	PPH	217	309	378	492	476	-	-	-
2A, 2B	#10-16	HWH	217	309	378	492	476	-	-	-
3	#10-24	PWH	194 <sup>8</sup>	298 <sup>7</sup>	400 <sup>6</sup>	664 <sup>6</sup>	874 <sup>7</sup>	-	-	-
4, 5	#12-14	HWH	211	328	423	525	816	1064	-	-
6	#12-14	PUFH	211	328	423	525	816	1064	-	-
7	#12-24	HWH	154 <sup>8</sup>	264 <sup>7</sup>	359 <sup>6</sup>	609 <sup>6</sup>	811 <sup>7</sup>	1426 <sup>7</sup>	1632	1632
8	1/4-14	HWH	210	331	409	548	897	1439	-	-
9, 10	1/4-20	HWH	-	326 <sup>6</sup>	416 <sup>6</sup>	677 <sup>6</sup>	838 <sup>7</sup>	1462 <sup>7</sup>	1670	1930
11	5/16-18	HWH	-	-	-	832	1131	-	-	-
12A, 12B	5/16-24	HWH	-	-	-	735	1019	1159	1903	2279

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 Mpa.

<sup>1</sup>Available strengths are based on laboratory tests, with safety factors/resistance factors calculated in accordance with AISI S100.

<sup>2</sup>For tension connections, the lowest of the available pull-out, pull-over, and screw tension strength must be used for design.

<sup>3</sup>Values are based on steel members with a minimum yield strength of  $F_y = 33$  ksi and a minimum tensile strength of  $F_u = 45$  ksi.

<sup>4</sup>Available capacity for other member thickness may be determined by interpolating within the table.

<sup>5</sup>Unless otherwise noted, for steel with a minimum tensile strength  $F_u \geq 58$  ksi, multiply tabulated values by 1.29 and for steel with a minimum tensile strength  $F_u \geq 65$  ksi steel, multiply tabulated values by 1.44.

<sup>6</sup>When both steel sheets have a minimum specified tensile strength of  $F_u \geq 52$  ksi (e.g. ASTM A653 SS Grade 37), multiply tabulated values by 1.15.

<sup>7</sup>When both steel sheets have a minimum specified tensile strength of  $F_u \geq 58$  ksi (e.g. ASTM A36), multiply tabulated values by 1.29.

<sup>8</sup>Increasing values for higher steel tensile strength per Note 5 is not allowed.

<sup>9</sup>Head styles: HWH = Hex Washer Head; PPH = Phillips Pan Head; PWH = Phillips Wafer Head; PUFH = Phillips Undercut Flat Head.

TABLE 6—MINIMUM SCREW SPACING AND EDGE DISTANCE

BASIC SCREW DIAMETER (inch)	FASTENED MATERIAL	MINIMUM SPACING <sup>1</sup> (inch) (3d)	MINIMUM EDGE DISTANCE (inch) (1.5d)	MINIMUM EDGE DISTANCE FOR FRAMING MEMBERS UNDER THE 2018, 2015 AND 2012 IBC <sup>2</sup> (inch) (3d)
0.190 (#10)	Steel	9/16	5/16	9/16
0.216 (#12)	Steel	11/16	3/8	11/16
0.250 (1/4)	Steel	3/4	3/8	3/4
0.3125 (5/16)	Steel	15/16	1/2	15/16

For SI: 1 inch = 25.4 mm.

<sup>1</sup>For screws used in framing connections, when the spacing between screws is less than 3 times the nominal screws diameter, but at least 2 times the screw diameter, the connection shear strength values in Table 3 must be reduced by 20 percent (refer to Section B1.5.1.3 of AISI S240).

<sup>2</sup>For screws used in framing connections, when the edge is parallel to the direction of the applied force, the minimum edge distance may be 1.5 times the nominal screw diameter (refer to Section B1.5.1.3 of AISI S240).

TABLE 7—CODE SECTION NUMBER REFERENCE MATRIX

2024 IBC	2021 IBC	2018 IBC	2015 IBC
AISI S100-16(2020) w/S2-20 A3.1	AISI S100-16(2020) w/S2-20 A3.1	AISI S100-16 A3.1	AISI S100-12 A2.1
AISI S100-16(2020) w/S2-20 J4	AISI S100-16(2020) w/S2-20 J4	AISI S100-16 J4	AISI S100-12 E4
AISI S100-16(2020) w/S2-20 J6	AISI S100-16(2020) w/S2-20 J6	AISI S100-16 J6	AISI S100-12 E6
AISI S240-20 B1.5.1.3	AISI S240-20 B1.5.1.3	AISI S240-20 B1.5.1.3	AISI S200-12 D1.5