



Fig. 909 - No-Thread Swivel Sway Brace Attachment

Size Range: 1" (25mm) bracing pipe. For brace pipe sizes larger than 1" (25mm), use Fig. 980. Available with holes for 1/2"-13 thru 3/4"-10 fastener attachment.

Material: Steel, hardened cone point set bolt

Function: The structural component of a sway and seismic bracing system.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 indicates clearly that fastener table load values are based only on concentric loading. No threading of the bracing pipe is required. Open design allows for easy inspection of pipe engagement.

Application Note: Fig. 909 is used in conjunction with the Fig. 1000, Fig. 1001, Fig. 4A or Fig. 4L or other approved TOLCO attachment to pipe, and joined together with bracing pipe. Sway brace assemblies are intended to be installed in accordance with NFPA 13. The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13.

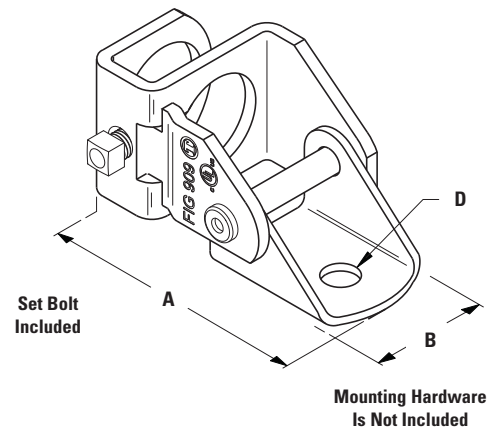
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL).

Installation Instructions: Fig. 909 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO "braced pipe" attachment, Fig. 1000, 1001, 4A, or other approved TOLCO attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 909 onto the bracing pipe. Tighten the set bolt until the head bottoms out on surface. Attachment can pivot for adjustment to proper brace angle.

Finish: Plain or Electro-Galvanized. Contact B-Line for alternative finishes and materials.

Order By: Figure number, fastener attachment size and finish.



Part Number	Mounting Hole D		Brace Pipe Size	A	B	Max. Design Load	Approx. Wt./100	
	in.	(mm)					in.	(mm)
909-1/2 *	17/32"	(13.5)	1" (25)	6" (152.4)	1 5/8" (41.3)	2015 (8.96)	91	(41.3)
909-5/8	1 1/16"	(17.5)	1" (25)	6" (152.4)	1 5/8" (41.3)	2015 (8.96)	90	(40.8)
909-3/4	1 3/16"	(20.6)	1" (25)	6" (152.4)	1 5/8" (41.3)	2015 (8.96)	89	(40.4)

* Standard size.

Important! - For load information when using Fig. 909 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on pages AL1 thru AL21.

Eaton's B-Line Business seismic bracing components are designed to be compatible only with other B-Line bracing components, resulting in a listed seismic bracing assembly. B-Line's warranty for seismic bracing components will be the warranty provided in B-Line's standard terms and conditions of sale made available by B-Line, except that, in addition to the other exclusions from B-Line's warranty, Eaton's B-line Business makes no warranty relating to B-Line's seismic bracing components that are combined with products not provided by Eaton's B-Line Business.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Seismic Bracing



Fig. 910 - Threaded Swivel Sway Brace Attachment

Size Range: 1" (25mm) bracing pipe. For brace pipe sizes larger than 1" (25mm), use Fig. 980. Available with holes for 1/2"-13 thru 3/4"-10 fastener attachment.

Material: Steel

Function: For bracing pipe against sway and seismic disturbances. The building attachment component of a sway brace system; the Fig. 910 is used in conjunction with the Fig. 1001, Fig. 1000 or with a Fig. 4A, Fig. 4L, or Fig. 4LA pipe clamp and joined together with a brace pipe per NFPA 13.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 (2010) 9.3.5.8.4 indicates that fastener table load values are based only on concentric loading. Universal swivel design allows Fig. 910 to be attached at any surface angle.

Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD, OPA-0300). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

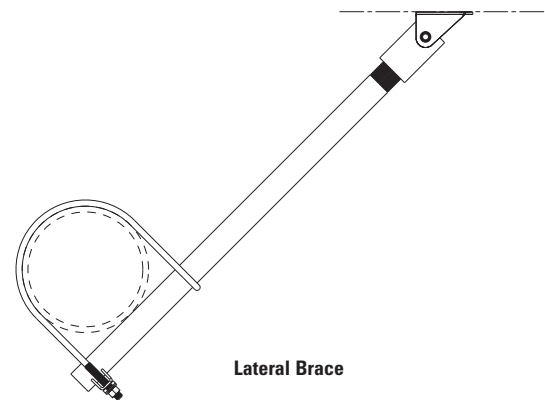
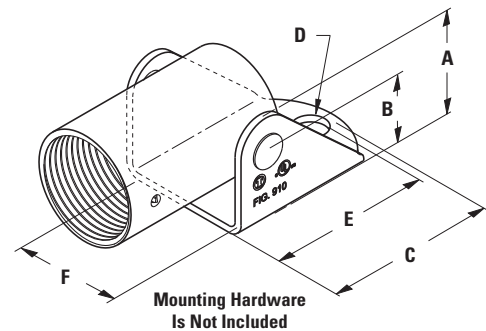
Installation Instructions: Fig. 910 is a structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe", and TOLCO "braced pipe" attachment, Fig. 1000, Fig. 1001, Fig. 4A, Fig. 4L or Fig. 4LA to form a complete bracing assembly. Follow NFPA 13 and/or OSHPD guidelines.

To Install: Thread the pipe into the Fig. 910 until pipe threads are visible through inspection site hole. Attachment can pivot for adjustment to proper brace angle.

Note: Fig. 910 swivel attachment and Fig. 1001, Fig. 1000, Fig. 4A Fig. 4L, or Fig. 4LA pipe clamps make up a sway brace system of (UL) Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA).

Finish: Electro-Galvanized. Contact B-Line for alternative finishes and materials.

Order By: Figure number, pipe size, fastener attachment size, and finish.



Part Number	Brace Pipe Size in. (mm)	A		B		C		Mounting Hole D		E	F	Max. Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)		
		in. (mm)	mm	in. (mm)	mm	in. (mm)	mm	in. (mm)	mm						
910-1 X 1/2	1" (25)	2" (50.8)	50.8	1 1/2" (38.1)	38.1	3" (76.2)	76.2	9/16" (14.3)	14.3	2 5/16" (58.7)	58.7	2" (50.8)	50.8	1600 (8.96)	88 (39.9)
910-1 X 5/8	1" (25)	2" (50.8)	50.8	1 1/2" (38.1)	38.1	3" (76.2)	76.2	1 1/16" (17.5)	17.5	2 5/16" (58.7)	58.7	2" (50.8)	50.8	1600 (8.96)	87 (39.4)
910-1 X 3/4	1" (25)	2" (50.8)	50.8	1 1/2" (38.1)	38.1	3" (76.2)	76.2	1 3/16" (20.6)	20.6	2 5/16" (58.7)	58.7	2" (50.8)	50.8	1600 (8.96)	86 (39.0)

Important! - For load information when using Fig. 910 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on pages AL1 thru AL21.

Eaton's B-Line Business seismic bracing components are designed to be compatible only with other B-Line bracing components, resulting in a listed seismic bracing assembly. B-Line's warranty for seismic bracing components will be the warranty provided in B-Line's standard terms and conditions of sale made available by B-Line, except that, in addition to the other exclusions from B-Line's warranty, Eaton's B-line Business makes no warranty relating to B-Line's seismic bracing components that are combined with products not provided by Eaton's B-Line Business.

Seismic Bracing



Fig. 980 - Universal Swivel Sway Brace Attachment - 3/8" to 3/4"

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line 12 gauge (2.6mm) channel, and all structural steel up to 1/4" (31.7mm) thick.

Material: Steel

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 indicates clearly that fastener table load values are based only on concentric loading. Mounts to any surface angle. Break off bolt head assures verification of proper installation.

Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO "braced pipe" attachment, Fig. 1000, 1001, 2002, 4L, 4A or approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Underwriters Laboratories Listed in the USA (UL) and Canada (cUL).

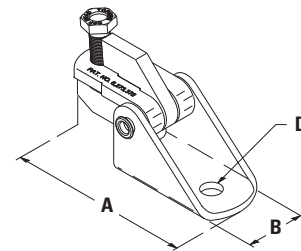
For FM Approval information refer to page 67.

Note: Fig. 980 Swivel Attachment and Fig. 1001, 1000, 2002, 4A or approved attachment to pipe that make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

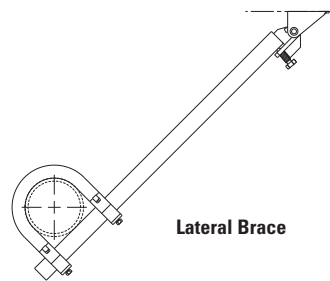
Finish: Plain, Electro-Galvanized or Stainless Steel. Contact B-Line for alternative finishes.

Order By: Figure number and finish.

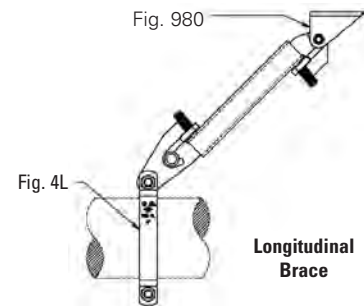
Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174, Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730, Pat. #7,669,806



**Set Bolt Included
Mounting Hardware Is Not Included**



Lateral Brace



Longitudinal Brace

Part Number	Mtg. Hdw. Size in. (mm)	A in. (mm)	B in. (mm)	Mounting Hole D in. (mm)	Max. Design Load (cULus) in. (mm)	Approx. Wt./100 lbs. (kg)
980-3/8	3/8" (9.5)	5 1/4" (133.3)	1 7/8" (47.6)	13/32" (10.3)	2015 (8.96)	149 (67.6)
980-1/2 *	1/2" (12.7)	5 1/4" (133.3)	1 7/8" (47.6)	17/32" (13.5)	2015 (8.96)	148 (67.1)
980-5/8	5/8" (15.9)	5 1/4" (133.3)	1 7/8" (47.6)	1 1/16" (17.5)	2015 (8.96)	147 (66.7)
980-3/4	3/4" (19.0)	5 1/4" (133.3)	1 7/8" (47.6)	13/16" (20.5)	2015 (8.96)	146 (66.2)

* Standard size.

Important! - For load information when using Fig. 980 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on pages AL1 thru AL21.

Eaton's B-Line Business seismic bracing components are designed to be compatible only with other B-Line bracing components, resulting in a listed seismic bracing assembly. B-Line's warranty for seismic bracing components will be the warranty provided in B-Line's standard terms and conditions of sale made available by B-Line, except that, in addition to the other exclusions from B-Line's warranty, Eaton's B-line Business makes no warranty relating to B-Line's seismic bracing components that are combined with products not provided by Eaton's B-Line Business.



Fig. 980 - Universal Swivel Sway Brace Attachment - 3/8" to 3/4"

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line 12 gauge (2.6mm) channel, and all structural steel up to 1/4" (31.7mm) thick.

Material: Steel

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 indicates clearly that fastener table load values are based only on concentric loading. Mounts to any surface angle. Break off bolt head assures verification of proper installation.

Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO "braced pipe" attachment, Fig. 1000, 1001, 4L, or other TOLCO approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Approved by Factory Mutual Engineering (FM).

For UL Listed information refer to page 66.

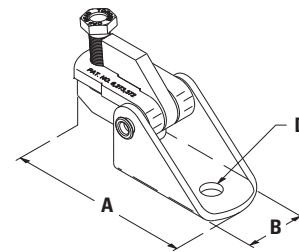
Note: Fig. 980 Swivel Attachment and Fig. 1000, 1001, 4L or other TOLCO approved attachment to pipe that make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

Finish: Plain, Electro-Galvanized or Stainless Steel. Contact B-Line for alternative finishes.

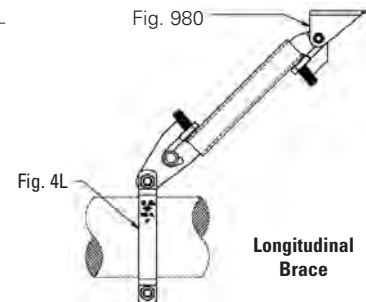
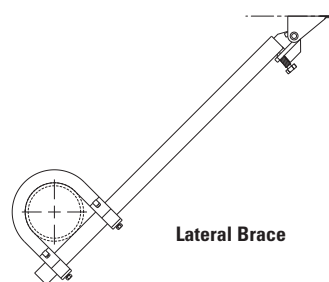
Order By: Figure number and finish.

**Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174,
Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730,
Pat. #7,669,806**

Designed to meet or exceed requirements of FM DS 2-8.



**Set Bolt
Included
Mounting Hardware
Is Not Included**



Part Number	Mtg. Hdw. Size in. (mm)	Mounting Hole			Max. Design Load** (FM)				Approx. Wt./100 lbs. (kg)
		A in. (mm)	B in. (mm)	D in. (mm)	30° - 44° lbs./(kN)	45° - 59° lbs./(kN)	60° - 74° lbs./(kN)	75° - 90° lbs./(kN)	
980-3/8	3/8" (9.5)	5 1/4" (133.3)	1 7/8" (47.6)	13/32" (10.3)					149 (67.6)
980-1/2 *	1/2" (12.7)	5 1/4" (133.3)	1 7/8" (47.6)	17/32" (13.5)	1320 (5.87)	1970 (8.76)	2310 (10.27)	2550 (11.34)	148 (67.1)
980-5/8	5/8" (15.9)	5 1/4" (133.3)	1 7/8" (47.6)	1 1/16" (17.5)					147 (66.7)
980-3/4	3/4" (19.0)	5 1/4" (133.3)	1 7/8" (47.6)	1 3/16" (20.5)					146 (66.2)

* Standard size.

** Installed with 1" or 1 1/4" Schedule 40 brace pipe.

FM Approved design loads are based on ASD design method.

Important! - For load information when using Fig. 980 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on pages AL1 thru AL21.

Eaton's B-Line Business seismic bracing components are designed to be compatible only with other B-Line bracing components, resulting in a listed seismic bracing assembly. B-Line's warranty for seismic bracing components will be the warranty provided in B-Line's standard terms and conditions of sale made available by B-Line, except that, in addition to the other exclusions from B-Line's warranty, Eaton's B-Line Business makes no warranty relating to B-Line's seismic bracing components that are combined with products not provided by Eaton's B-Line Business.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

NFPA 13-16 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 3000 psi Sand Lightweight Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	101	222	270	156	222	175	84	118	145
1/2	3.750	216	491	605	349	491	374	182	257	315
5/8	3.875	252	594	741	428	594	437	216	306	375
3/4	4.500	311	728	907	523	728	539	266	376	461

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	121	243	265	153	243	210	107	151	185
1/2	3.750	161	541	592	342	541	452	235	333	407
5/8	3.875	306	658	724	418	658	530	283	401	491
3/4	4.500	378	806	886	512	806	654	348	492	602

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	101	222	270	156	222	175	84	118	145
1/2	3.750	216	491	605	349	491	374	182	257	315
5/8	3.875	252	594	741	428	594	437	216	306	375
3/4	4.500	311	728	907	523	728	539	266	376	461

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Power-Stud+® is a registered trademark used by Power® Fasteners, Inc.

Anchor Load Charts

NFPA 13-16 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 3000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	145	310	373	215	310	251	118	167	205
1/2	3.750	299	632	756	436	632	517	242	342	419
5/8	3.875	353	777	945	545	777	611	292	413	506
3/4	4.500	434	950	1151	664	950	752	358	506	620

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	173	338	366	211	338	300	149	211	259
1/2	3.750	356	687	742	428	687	617	304	430	526
5/8	3.875	423	852	926	534	852	733	373	527	646
3/4	4.500	521	1039	1128	651	1039	902	456	645	790

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	145	310	373	215	310	251	118	167	205
1/2	3.750	299	632	756	436	632	517	242	342	419
5/8	3.875	353	777	945	545	777	611	292	413	506
3/4	4.500	434	950	1151	664	950	752	358	506	620

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Power-Stud+® is a registered trademark used by Power® Fasteners, Inc.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

NFPA 13-16 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 4000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	157	329	393	227	329	271	126	179	219
1/2	3.750	335	688	813	470	688	581	267	377	462
5/8	3.875	398	852	1025	592	852	689	324	458	561
3/4	4.500	489	1040	1247	720	1040	847	397	561	688

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	187	358	386	223	358	323	158	224	274
1/2	3.750	398	744	800	462	744	689	332	469	574
5/8	3.875	475	929	1005	580	929	823	410	579	709
3/4	4.500	584	1132	1224	706	1132	1011	500	707	866

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	157	329	393	227	329	271	126	179	219
1/2	3.750	335	688	813	470	688	581	267	377	462
5/8	3.875	398	852	1025	592	852	689	324	458	561
3/4	4.500	489	1040	1247	720	1040	847	397	561	688

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Power-Stud+® is a registered trademark used by Power® Fasteners, Inc.

NFPA 13-16 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 5000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2.375	166	344	408	235	344	288	133	188	230
1/2	3.750	366	732	858	495	732	634	287	406	497
5/8	3.875	435	912	1087	628	912	754	350	496	607
3/4	4.500	536	1112	1322	763	1112	928	429	607	743

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2.375	197	373	401	231	373	342	166	234	287
1/2	3.750	432	789	844	488	789	748	354	500	612
5/8	3.875	518	991	1068	617	991	898	439	621	761
3/4	4.500	637	1206	1298	750	1206	1103	536	758	928

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2.375	166	344	408	235	344	288	133	188	230
1/2	3.750	366	732	858	495	732	634	287	406	497
5/8	3.875	435	912	1087	628	912	754	350	496	607
3/4	4.500	536	1112	1322	763	1112	928	429	607	743

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

NFPA 13-16 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 6000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	174	356	420	243	356	302	138	196	240
1/2	3.750	392	768	895	517	768	680	304	430	527
5/8	3.875	468	962	1139	658	962	811	373	527	646
3/4	4.500	576	1172	1383	798	1172	997	456	645	790

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	207	385	413	238	385	358	172	243	297
1/2	3.750	462	826	881	509	826	799	372	526	644
5/8	3.875	556	1042	1119	646	1042	963	464	656	804
3/4	4.500	682	1267	1360	785	1267	1181	566	800	979

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	174	356	420	243	356	302	138	196	240
1/2	3.750	392	768	895	517	768	680	304	430	527
5/8	3.875	468	962	1139	658	962	811	373	527	646
3/4	4.500	576	1172	1383	798	1172	997	456	645	790

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Power-Stud+® is a registered trademark used by Power® Fasteners, Inc.

NFPA 13-16 Wood-Knocker™ In 3000 psi Sand Lightweight Concrete

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2	160	310	359	207	310	277	123	174	213
1/2	2	174	366	438	253	366	301	140	198	243
5/8	2	174	366	438	253	366	301	140	198	243
3/4	2	174	366	438	253	366	301	140	198	243

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2	187	332	354	204	332	325	150	212	260
1/2	2	207	399	430	248	399	358	176	249	305
5/8	2	207	399	430	248	399	358	176	249	305
3/4	2	207	399	430	248	399	358	176	249	305

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2	160	310	359	207	310	277	123	174	213
1/2	2	174	366	438	253	366	301	140	198	243
5/8	2	174	366	438	253	366	301	140	198	243
3/4	2	174	366	438	253	366	301	140	198	243

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

NFPA 13-16 Wood-Knocker™ In 3000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 3000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	180	335	384	222	335	312	135	192	235
1/2	2	204	431	516	298	431	354	165	233	286
5/8	2	204	431	516	298	431	354	165	233	286
3/4	2	204	431	516	298	431	354	165	233	286

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	210	358	379	219	358	363	163	230	282
1/2	2	243	469	506	292	469	422	208	293	359
5/8	2	243	469	506	292	469	422	208	293	359
3/4	2	243	469	506	292	469	422	208	293	359

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	180	335	384	222	335	312	135	192	235
1/2	2	204	431	516	298	431	354	165	233	286
5/8	2	204	431	516	298	431	354	165	233	286
3/4	2	204	431	516	298	431	354	165	233	286

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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Anchor Load Charts

NFPA 13-16 Wood-Knocker™ In 4000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 4000 psi Normal Weight Concrete (lbs.)^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	199	358	406	234	358	345	147	208	254
1/2	2	232	480	570	329	480	401	185	262	321
5/8	2	236	498	595	344	498	408	191	270	330
3/4	2	236	498	595	344	498	408	191	270	330

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 4000 psi Normal Weight Concrete (lbs.)^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	230	380	401	231	380	399	174	246	302
1/2	2	275	521	560	323	521	477	231	327	401
5/8	2	281	542	585	337	542	487	240	339	415
3/4	2	281	542	585	337	542	487	240	339	415

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 4000 psi Normal Weight Concrete (lbs.)^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	199	358	406	234	358	345	147	208	254
1/2	2	232	480	570	329	480	401	185	262	321
5/8	2	236	498	595	344	498	408	191	270	330
3/4	2	236	498	595	344	498	408	191	270	330

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

NFPA 13-16 Wood-Knocker™ In 5000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 5000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	215	375	422	244	375	372	156	220	269
1/2	2	253	512	602	348	512	438	200	282	346
5/8	2	264	557	666	384	557	457	213	301	369
3/4	2	264	557	666	384	557	457	213	301	369

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 5000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	247	397	417	241	397	428	183	259	317
1/2	2	299	553	593	342	553	519	247	349	428
5/8	2	314	605	654	377	605	544	268	379	464
3/4	2	314	605	654	377	605	544	268	379	464

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 5000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	215	375	422	244	375	372	156	220	269
1/2	2	253	512	602	348	512	438	200	282	346
5/8	2	264	557	666	384	557	457	213	301	369
3/4	2	264	557	666	384	557	457	213	301	369

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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NFPA 13-16 Wood-Knocker™ In 6000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 6000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	228	389	435	251	389	394	163	230	282
1/2	2	271	538	629	363	538	470	212	299	367
5/8	2	289	610	729	421	610	500	233	330	404
3/4	2	289	610	729	421	610	500	233	330	404

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 6000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	261	410	430	248	410	452	190	269	329
1/2	2	320	579	619	357	579	554	260	368	450
5/8	2	344	663	716	413	663	596	293	415	508
3/4	2	344	663	716	413	663	596	293	415	508

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 6000 psi Normal Weight Concrete (lbs.) ^{1,2}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	228	389	435	251	389	394	163	230	282
1/2	2	271	538	629	363	538	470	212	299	367
5/8	2	289	610	729	421	610	500	233	330	404
3/4	2	289	610	729	421	610	500	233	330	404

¹ Values calculated in accordance with NFPA 13-16 Annex E.7 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood Knocker™ is a registered trademark used by Power® Fasteners, Inc.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

ASCE 7-10 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 3000 psi Sand Lightweight Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	81	178	216	125	178	140	67	94	116
1/2	3.750	173	393	484	279	393	299	145	206	252
5/8	3.875	202	475	593	342	475	350	173	245	300
3/4	4.500	249	582	725	419	582	431	213	301	369

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	97	195	212	122	195	168	85	121	148
1/2	3.750	209	433	473	273	433	361	188	266	326
5/8	3.875	245	526	579	334	526	424	227	321	393
3/4	4.500	302	645	709	409	645	523	278	393	482

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Sand Lightweight Concrete (lbs.) ^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	81	178	216	125	178	140	67	94	116
1/2	3.750	173	393	484	279	393	299	145	206	252
5/8	3.875	202	475	593	342	475	350	173	245	300
3/4	4.500	249	582	725	419	582	431	213	301	369

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Power-Stud+® is a registered trademark used by Power® Fasteners, Inc.

Anchor Load Charts

ASCE 7-10 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 3000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2.375	116	248	299	172	248	201	95	134	164
1/2	3.750	239	505	604	349	505	414	193	273	335
5/8	3.875	282	622	756	436	622	489	234	330	404
3/4	4.500	347	760	921	532	760	602	286	405	496

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2.375	139	271	293	169	271	240	119	169	207
1/2	3.750	285	550	593	343	550	494	243	344	421
5/8	3.875	339	681	741	428	681	587	298	422	517
3/4	4.500	417	831	903	521	831	722	365	516	632

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2.375	116	248	299	172	248	201	95	134	164
1/2	3.750	239	505	604	349	505	414	193	273	335
5/8	3.875	282	622	756	436	622	489	234	330	404
3/4	4.500	347	760	921	532	760	602	286	405	496

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

ASCE 7-10 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 4000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	125	263	314	181	263	217	101	143	175
1/2	3.750	268	550	651	376	550	465	213	302	370
5/8	3.875	318	682	820	473	682	551	259	367	449
3/4	4.500	391	832	997	576	832	678	318	449	550

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	149	286	308	178	286	259	127	179	220
1/2	3.750	318	595	640	369	595	551	265	375	460
5/8	3.875	380	743	804	464	743	658	328	463	568
3/4	4.500	391	906	979	565	906	809	400	566	693

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 4000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	125	263	314	181	263	217	101	143	175
1/2	3.750	268	550	651	376	550	465	213	302	370
5/8	3.875	318	682	820	473	682	551	259	367	449
3/4	4.500	391	832	997	576	832	678	318	449	550

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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Anchor Load Charts

ASCE 7-10 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 5000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2.375	133	275	326	188	275	230	106	150	184
1/2	3.750	293	585	687	396	585	507	230	325	398
5/8	3.875	348	730	870	502	730	603	280	396	486
3/4	4.500	428	890	1057	610	890	742	343	485	594

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2.375	158	298	321	185	298	274	133	187	230
1/2	3.750	346	631	676	390	631	599	283	400	490
5/8	3.875	415	793	854	493	793	718	351	497	609
3/4	4.500	509	965	1039	600	965	882	429	606	742

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2.375	133	275	326	188	275	230	106	150	184
1/2	3.750	293	585	687	396	585	507	230	325	398
5/8	3.875	348	730	870	502	730	603	280	396	486
3/4	4.500	428	890	1057	610	890	742	343	485	594

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

ASCE 7-10 AWSD / Powers Power-Stud+® SD2 Seismic Wedge Anchors In 6000 psi Normal Weight Cracked Concrete

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2.375	139	285	336	194	285	242	111	156	192
1/2	3.750	314	615	716	413	615	544	243	344	421
5/8	3.875	375	770	911	526	770	649	298	422	517
3/4	4.500	461	938	1106	639	938	798	365	516	632

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2.375	165	308	330	191	308	286	137	194	238
1/2	3.750	369	661	705	407	661	640	297	421	515
5/8	3.875	445	833	896	517	833	770	371	525	643
3/4	4.500	546	1014	1088	628	1014	945	452	640	784

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

AWSD (Powers Power -Stud+® SD2) Seismic Wedge Anchor in 6000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2.375	139	285	336	194	285	242	111	156	192
1/2	3.750	314	615	716	413	615	544	243	344	421
5/8	3.875	375	770	911	526	770	649	298	422	517
3/4	4.500	461	938	1106	639	938	798	365	516	632

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 2502 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance \geq Cac, slab thickness \geq hmin, spacing \geq 3hef

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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ASCE 7-10 Wood-Knocker™ In 3000 psi Sand Lightweight Concrete

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2	128	248	288	166	248	221	98	139	170
1/2	2	139	293	351	202	293	240	112	159	194
5/8	2	139	293	351	202	293	240	112	159	194
3/4	2	139	293	351	202	293	240	112	159	194

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2	150	266	283	164	266	260	120	170	208
1/2	2	165	319	344	199	319	287	141	200	244
5/8	2	165	319	344	199	319	287	141	200	244
3/4	2	165	319	344	199	319	287	141	200	244

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Sand Lightweight Concrete (lbs.)^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2	128	248	288	166	248	221	98	139	170
1/2	2	139	293	351	202	293	240	112	159	194
5/8	2	139	293	351	202	293	240	112	159	194
3/4	2	139	293	351	202	293	240	112	159	194

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

ASCE 7-10 Wood-Knocker™ In 3000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	144	268	308	178	268	249	108	153	188
1/2	2	163	345	412	238	345	283	132	187	229
5/8	2	163	345	412	238	345	283	132	187	229
3/4	2	163	345	412	238	345	283	132	187	229

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	168	286	303	175	286	290	130	184	226
1/2	2	195	375	405	234	375	337	166	235	288
5/8	2	195	375	405	234	375	337	166	235	288
3/4	2	195	375	405	234	375	337	166	235	288

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 3000 psi Normal Weight Cracked Concrete (lbs.) ^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	144	268	308	178	268	249	108	153	188
1/2	2	163	345	412	238	345	283	132	187	229
5/8	2	163	345	412	238	345	283	132	187	229
3/4	2	163	345	412	238	345	283	132	187	229

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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ASCE 7-10 Wood-Knocker™ In 4000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 4000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2	159	286	325	187	286	276	117	166	203
1/2	2	185	384	456	263	384	321	148	210	257
5/8	2	189	398	476	275	398	327	152	216	264
3/4	2	189	398	476	275	398	327	152	216	264

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 4000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2	184	304	321	185	304	319	139	197	241
1/2	2	220	417	448	259	417	381	185	262	321
5/8	2	225	433	468	270	433	389	192	271	332
3/4	2	225	433	468	270	433	389	192	271	332

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 4000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2	159	286	325	187	286	276	117	166	203
1/2	2	185	384	456	263	384	321	148	210	257
5/8	2	189	398	476	275	398	327	152	216	264
3/4	2	189	398	476	275	398	327	152	216	264

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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Anchor Load Charts

ASCE 7-10 Wood-Knocker™ In 5000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.469	<i>Pr</i> 2.008
3/8	2	172	300	338	195	300	297	124	176	216
1/2	2	202	409	482	278	409	351	160	226	277
5/8	2	211	445	532	307	445	365	170	241	295
3/4	2	211	445	532	307	445	365	170	241	295

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 2.626	<i>Pr</i> 1.002	<i>Pr</i> 0.873	<i>Pr</i> 1.513	<i>Pr</i> 1.002	<i>Pr</i> 1.516	<i>Pr</i> 2.460	<i>Pr</i> 1.740	<i>Pr</i> 1.420
3/8	2	198	318	334	193	318	342	146	207	253
1/2	2	240	442	474	274	442	415	198	280	342
5/8	2	251	484	523	302	484	435	214	303	371
3/4	2	251	484	523	302	484	435	214	303	371

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 5000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i> 3.275	<i>Pr</i> 1.156	<i>Pr</i> 0.844	<i>Pr</i> 1.461	<i>Pr</i> 1.156	<i>Pr</i> 1.891	<i>Pr</i> 3.478	<i>Pr</i> 2.459	<i>Pr</i> 2.008
3/8	2	172	300	338	195	300	297	124	176	216
1/2	2	202	409	482	278	409	351	160	226	277
5/8	2	211	445	532	307	445	365	170	241	295
3/4	2	211	445	532	307	445	365	170	241	295

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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ASCE 7-10 Wood-Knocker™ In 6000 psi Normal Weight Cracked Concrete

Wood-Knocker™ in 6000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 980

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.469	2.008
3/8	2	182	311	348	201	311	315	130	184	226
1/2	2	217	430	503	290	430	376	169	240	293
5/8	2	231	488	583	337	488	400	187	264	323
3/4	2	231	488	583	337	488	400	187	264	323

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 6000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 909

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		2.626	1.002	0.873	1.513	1.002	1.516	2.460	1.740	1.420
3/8	2	209	328	344	199	328	361	152	215	263
1/2	2	256	463	495	286	463	443	208	294	360
5/8	2	275	531	573	331	531	477	235	332	407
3/4	2	275	531	573	331	531	477	235	332	407

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

Wood-Knocker™ in 6000 psi Normal Weight Cracked Concrete (lbs.)^{1,2,3}

Tolco Figure 910

Dia. (in.)	Embedment (in.)	A	B	C	D	E	F	G	H	I
		<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>	<i>Pr</i>
		3.275	1.156	0.844	1.461	1.156	1.891	3.478	2.459	2.008
3/8	2	182	311	348	201	311	315	130	184	226
1/2	2	217	430	503	290	430	376	169	240	293
5/8	2	231	488	583	337	488	400	187	264	323
3/4	2	231	488	583	337	488	400	187	264	323

¹ Values calculated in accordance with ASCE 7-10 See ICC-ESR 3657 for complete product installation information

² Assumptions for table: seismic anchoring conditions, edge distance $\geq 8"$, slab thickness $\geq h_{min}$, spacing $\geq 3h_{ef}$

³ Anchor capacities increased by a factor of 1.2 per ASCE 7-10 Section 12.4.3.3

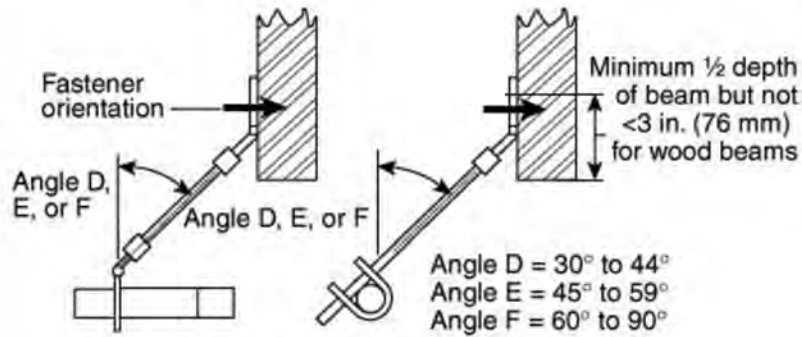
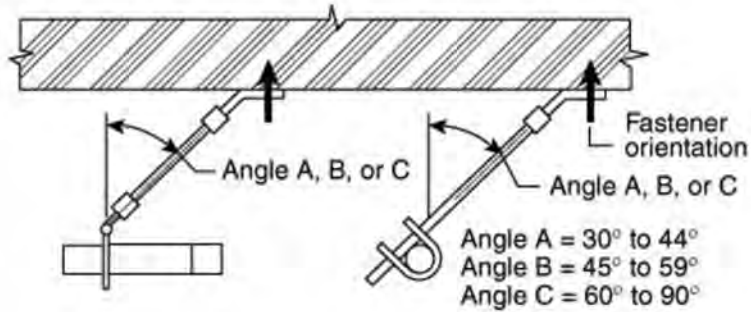
A thru I corresponds to fastener orientation (shown on page AL21) from Table Figure 9.3.5.9.1 NFPA 13 2016.

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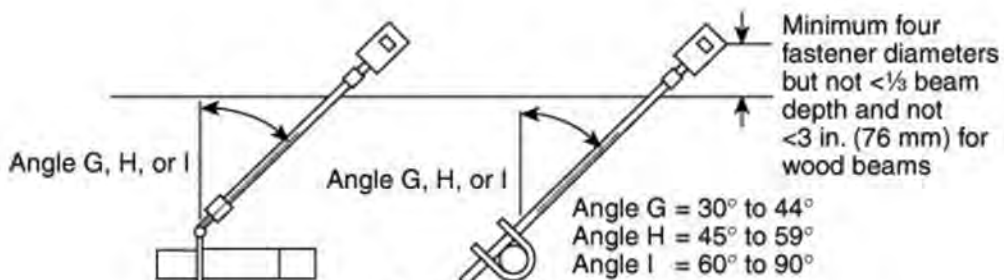
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Anchor Load Charts

Table Figure 9.3.5.9.1
NFPA 13 2016



Load Perpendicular to Structural Member



Load Parallel to Structural Member