SET *High Strength Epoxy-Tie® Anchoring Adhesive*

SIMPSON Strong-Tie ANCHOR SYSTEMS

SET Epoxy-Tie® epoxy is a two-component, 1:1 ratio, high solids, epoxy-based adhesive for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET meets or exceeds the requirements of ASTM C-881 specification for Type I, II, IV and V, Grade 3, Class B and C.

USES:
- Threaded-rod anchoring
- Rebar doweling
- Bonding hardened concrete to hardened concrete
- Pick-proof sealant around doors, windows and fixtures
- Paste-over for crack injection

CODES: ICC-ES ESR-1772 (CMU & URM); City of L.A. RR25279; Florida FL 11506.4; Caltrans approved; multiple DOT listings; NSF/ANSI Standard 61 (216 in²/1000 gal), except SET1.7KTA. SET-PAC-EZ™ adhesive covered by ICC-ES, City of L.A. and NSF/ANSI listings only. ⚠ The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

APPLICATION: Surfaces to receive epoxy must be clean. For installations in or through standing water, see page 15 for details. The base material temperature must be 40°F or above at the time of installation. For best results, material should be 70°–80°F at the time of application. Cartridges should not be immersed in water to facilitate warming. To warm cold material, the cartridges should be stored in a warm, uniformly heated area or storage container for a sufficient time to allow epoxy to warm completely. Mixed material in nozzle can harden in 5–7 minutes at a temperature of 40°F or above.

ASD DESIGN EXAMPLE: See page 22

INSTALLATION: See pages 31–32

SHELF LIFE: 24 months from date of manufacture in unopened side-by-side cartridge. SET-PAC-EZ™ cartridge - 24 months from date of manufacture, unopened.

STORAGE CONDITIONS: For best results store between 45°F - 90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

COLOR: Resin – white, hardener – black
When properly mixed SET adhesive will be a uniform light gray color.

CLEAN UP: Uncured material—Wipe up with cotton cloths. If desired scrub area with abrasive, waterbased cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc.), lacquer thinner or adhesive remover can be used. DO NOT USE SOLVENTS TO CLEAN ADHESIVE FROM SKIN. Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied. Cured material – Chip or grind off surface.

TEST CRITERIA: Anchors installed with SET Epoxy-Tie® adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Adhesive Anchors (AC58)* for the following:
- Seismic/wind loading
- Long-term creep at elevated-temperature
- Static loading at elevated-temperature
- Damp and water-filled holes
- Freeze-thaw conditions
- Critical and minimum edge distance and spacing

In addition, anchors installed with SET Epoxy-Tie® adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Unreinforced Masonry Anchors (AC60).*

PROPERTY	TEST METHOD	RESULTS
Consistency	ASTM C 881	Non-sag/thixotropic paste
Heat deflection	ASTM D 648	136°F (58°C)
Bond strength (moist cure)	ASTM C 882	3,218 psi (2 days) 3,366 psi (14 days)
Water absorption	ASTM D 570	0.110% (24 hours)
Compressive yield strength	ASTM D 695	5,065 psi (24 hours) 12,650 psi (7 days)
Compressive modulus	ASTM D 695	439,000 psi (7 days)
Gel Time (75°F)	ASTM C 881	30 min. – 60 gram mass 60 min – Thin film

CHEMICAL RESISTANCE Very good to excellent against distilled water, inorganic acids and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones. For more detailed information visit our website or contact Simpson Strong-Tie and request Technical Bulletin T-SAS-CHEMRES08.

SET22

EMN22i

EDT22B

SET-PAC-EZ™ Adhesive
U.S. Patent 6,634,524

SET56

SET1.7KTA

- IMPORTANT - SEE Pages 31–32 FOR INSTALLATION INSTRUCTIONS

SET Cartridge Systems

Model No.	Capacity ounces (cubic inches)	Cartridge Type	Carton Quantity	Dispensing Tool(s)	Mixing[4] Nozzle
SET1.7KTA	1.7 (3.1)	side-by-side	12	Adaptor included for standard caulking tool	EMN1.7 (2 included)
SET-PAC-EZ	8.5 (16.2)	single	12	CDT10 or high quality standard caulking tool	2 included
SET22	22 (39.7)	side-by-side	10	EDT22B, EDT22AP, or EDT22CKT	EMN22i
SET56	56 (101.1)	side-by-side	6	EDT56AP	EMN22i or EMN50

1. Bulk containers also available, call Simpson Strong-Tie for details.
2. Cartridge and bulk estimation guides are available on pages 63–66.
3. Detailed information on dispensing tools, mixing nozzles and other adhesive accessories is available on pages 87–92.
4. Use only appropriate Simpson Strong-Tie mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance.

SUGGESTED SPECIFICATIONS: Anchoring adhesive shall be a two-component high-solids epoxy based system supplied in manufacturer's standard cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. Epoxy shall meet the minimum requirements of ASTM C-881 specification for Type I, II, IV, and V, Grade 3, Class B and C and must develop a minimum 12,650 psi compressive yield strength after 7 day cure. Epoxy must have a heat deflection temperature of a minimum 136°F (58°C). Adhesive shall be SET Epoxy-Tie® adhesive from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per Simpson Strong-Tie instructions for SET Epoxy-Tie® adhesive.

ACCESSORIES: See pages 87–92 for information on dispensing tools, mixing nozzles and other accessories.

Cure Schedule

Base Material Temperature		Cure Time
°F	°C	
40	4	72 hrs.
65	18	24 hrs.
85	29	20 hrs.
90	32	16 hrs.

In-Service Temperature Sensitivity

Base Material Temperature		Percent Allowable Load
°F	°C	
40	4	100%
70	21	100%
110	43	100%
135	57	75%
150	66	44%
180	82	20%

1. Refer to temperature sensitivity chart for allowable bond strength reduction for temperature. See page 15 for more information.
2. Percent allowable load may be linearly interpolated for intermediate base material temperatures.
3. °C = (°F-32) / 1.8

Tension Loads for Threaded Rod Anchors in Normal-Weight Concrete (continued on next page)

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength						Tension Load Based on Steel Strength		
					f'c ≥ 2000 psi (13.8 MPa) Concrete			f'c ≥ 4000 psi (27.6 MPa) Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)
3/8 (9.5)	1/2	1¾ (44)	2⅝ (67)	7 (178)	1,900 (8.5)	485 (2.2)	475 (2.1)	1,900 (8.5)	•	475 (2.1)	2,105 (9.4)	4,535 (20.2)	3,630 (16.1)
		3½ (89)	5¼ (133)	14 (356)	10,200 (45.4)	119 (0.5)	2,550 (11.3)	10,280 (45.7)	97 (0.4)	2,570 (11.4)			
		4½ (114)	6¾ (171)	18 (457)	10,613 (47.2)	84 (0.4)	2,655 (11.8)	10,613 (47.2)	•	2,655 (11.8)			
1/2 (12.7)	5/8	2⅛ (54)	3 3/16 (81)	8½ (216)	7,216 (32.1)	1,163 (5.2)	1,805 (8.0)	7,216 (32.1)	•	1,805 (8.0)	3,750 (16.7)	8,080 (35.9)	6,470 (28.8)
		4¼ (108)	6⅜ (162)	17 (432)	17,700 (78.7)	629 (2.8)	4,425 (19.7)	18,400 (81.8)	788 (3.5)	4,600 (20.5)			
		6 (152)	9 (229)	24 (610)	18,556 (82.5)	853 (3.8)	4,640 (20.6)	18,556 (82.5)	•	4,640 (20.6)			
5/8 (15.9)	3/4	2½ (64)	3¾ (95)	10 (254)	6,780 (30.2)	315 (1.4)	1,695 (7.5)	6,780 (30.2)	•	1,695 (7.5)	5,875 (26.1)	12,660 (56.3)	10,120 (45.0)
		3¾ (95)	5⅝ (143)	15 (381)	•	•	4,190 (18.6)	•	•	4,875 (21.7)			
		5 (127)	7½ (191)	20 (508)	26,700 (118.8)	1,121 (5.0)	6,680 (29.7)	32,200 (143.2)	964 (4.3)	8,050 (35.8)			
		7 3/16 (183)	10⅞ (276)	28¾ (730)	•	•	7,515 (33.4)	•	•	8,200 (36.5)			
		9⅜ (238)	14⅛ (359)	37½ (953)	33,402 (148.6)	1,198 (5.3)	8,350 (37.1)	33,402 (148.6)	•	8,350 (37.1)			
3/4 (19.1)	7/8	3⅜ (86)	5 1/16 (129)	13½ (343)	15,456 (68.8)	2,621 (11.7)	3,865 (17.2)	15,456 (68.8)	•	3,865 (17.2)	8,460 (37.6)	18,230 (81.1)	12,400 (55.2)
		5 1/16 (129)	7⅝ (194)	20¼ (514)	•	•	7,195 (32.0)	•	•	7,245 (32.2)			
		6¾ (171)	10⅛ (257)	27 (686)	42,100 (187.3)	1,945 (8.7)	10,525 (46.8)	42,480 (189.0)	1,575 (7.0)	10,620 (47.2)			
		9 (229)	13½ (343)	36 (914)	•	•	11,220 (49.9)	•	•	11,265 (50.1)			
		11¼ (286)	16⅞ (429)	45 (1143)	47,634 (211.9)	608 (2.7)	11,910 (53.0)	47,634 (211.9)	•	11,910 (53.0)			

See Notes on Next Page

*See page 10 for an explanation of the load table icons

⅞" – 1¼" Diameters on next page

Tension Loads for Threaded Rod Anchors in Normal-Weight Concrete (continued from previous page)

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength						Tension Load Based on Steel Strength		
					f'c ≥ 2000 psi (13.8 MPa) Concrete			f'c ≥ 4000 psi (27.6 MPa) Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)	Allow. lbs. (kN)
7/8 (22.2)	1	3 7/8 (98)	5 13/16 (148)	15 1/2 (394)	19,120 (85.1)	1,239 (5.5)	4,780 (21.3)	19,120 (85.1)	•	4,780 (21.3)	11,500 (51.2)	24,785 (110.2)	16,860 (75.0)
		5 13/16 (148)	8 3/4 (222)	23 1/4 (591)	•	•	8,535 (38.0)	•	•	9,250 (41.1)			
		7 3/4 (197)	11 5/8 (295)	31 (787)	49,160 (218.7)	2,149 (9.6)	12,290 (54.7)	54,880 (244.1)	1,050 (4.7)	13,720 (61.0)			
		10 7/16 (265)	15 5/8 (397)	41 3/4 (1060)	•	•	14,480 (64.4)	•	•	15,195 (67.6)			
		13 1/8 (333)	19 5/8 (498)	52 1/2 (1334)	66,679 (296.6)	506 (2.3)	16,670 (74.2)	66,679 (296.6)	•	16,670 (74.2)			
1 (25.4)	1 1/8	4 1/2 (114)	6 3/4 (171)	18 (457)	20,076 (89.3)	2,388 (10.6)	5,020 (22.3)	20,076 (89.3)	•	5,020 (22.3)	15,025 (66.8)	32,380 (144.0)	22,020 (97.9)
		6 3/4 (171)	10 1/8 (257)	27 (686)	•	•	10,020 (44.6)	•	•	10,640 (47.3)			
		9 (229)	13 1/2 (343)	36 (914)	60,060 (267.2)	5,472 (24.3)	15,015 (66.8)	65,020 (289.2)	2,924 (13.0)	16,255 (72.3)			
		12 (305)	18 (457)	48 (1219)	•	•	17,810 (79.2)	•	•	18,430 (82.0)			
		15 (381)	22 1/2 (572)	60 (1524)	82,401 (366.5)	6,432 (28.6)	20,600 (91.6)	82,401 (366.5)	•	20,600 (91.6)			
1 1/8 (28.6)	1 1/4	5 1/8 (130)	7 3/4 (197)	20 1/2 (521)	27,560 (122.6)	•	6,890 (30.6)	27,560 (122.6)	•	6,890 (30.6)	19,025 (84.6)	41,000 (182.4)	27,880 (124.0)
		7 5/8 (194)	11 1/2 (292)	30 1/2 (775)	•	•	12,105 (53.8)	•	•	12,500 (55.6)			
		10 1/8 (257)	15 1/4 (387)	40 1/2 (1029)	69,200 (307.8)	•	17,300 (77.0)	72,340 (321.8)	•	18,085 (80.4)			
		13 1/2 (343)	20 1/4 (514)	54 (1372)	•	•	21,380 (95.1)	•	•	21,770 (96.8)			
		16 7/8 (429)	25 3/8 (645)	67 1/2 (1715)	101,820 (452.9)	•	25,455 (113.2)	101,820 (452.9)	•	25,455 (113.2)			
1 1/4 (31.8)	1 3/8	5 5/8 (143)	8 7/16 (214)	22 1/2 (572)	35,858 (159.5)	2,389 (10.6)	8,965 (39.9)	35,858 (159.5)	•	8,965 (39.9)	23,490 (104.5)	50,620 (225.2)	34,425 (153.1)
		8 7/16 (214)	12 3/4 (324)	33 3/4 (857)	•	•	14,115 (62.8)	•	•	14,115 (62.8)			
		11 1/4 (286)	16 7/8 (429)	45 (1143)	77,045 (342.7)	7,024 (31.2)	19,260 (85.7)	77,045 (342.7)	•	19,260 (85.7)			
		15 (381)	22 1/2 (572)	60 (1524)	•	•	24,965 (111.0)	•	•	24,965 (111.0)			
		18 3/4 (476)	28 1/8 (714)	75 (1905)	122,681 (545.7)	10,940 (48.7)	30,670 (136.4)	122,681 (545.7)	•	30,670 (136.4)			

1. Allowable load must the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 48 and 50.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
7. Anchors are not permitted to resist tension forces in overhead or wall installations unless proper consideration is given to fire-exposure and elevated-temperature conditions.
8. Allowable load based on bond strength may be interpolated for concrete compressive strengths between 2000 psi and 4000 psi.

*See page 10 for an explanation of the load table icons.

Shear Loads for Threaded Rod Anchors in Normal-Weight Concrete

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Shear Load Based on Concrete Edge Distance			Shear Load Based on Steel Strength		
					f'c ≥ 2000 psi (13.8 MPa) Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
3/8 (9.5)	1/2	1 3/4 (44)	5 1/4 (133)	2 5/8 (67)	4,573 (20.3)	317 (1.4)	1,145 (5.1)	1,085 (4.8)	2,340 (10.4)	1,870 (8.3)
		3 1/2 (89)		5 1/4 (133)	6,935 (30.8)	965 (4.3)	1,735 (7.7)			
		4 1/2 (114)		5 1/4 (133)	•	•	1,735 (7.7)			
1/2 (12.7)	5/8	2 1/8 (54)	6 3/8 (162)	3 1/4 (83)	7,001 (31.1)	437 (1.9)	1,750 (7.8)	1,930 (8.6)	4,160 (18.5)	3,330 (14.8)
		4 1/4 (108)		6 3/8 (162)	11,116 (49.4)	1,696 (7.5)	2,780 (12.4)			
		6 (152)		6 3/8 (162)	•	•	2,780 (12.4)			
5/8 (15.9)	3/4	2 1/2 (64)	7 1/2 (191)	3 3/4 (95)	14,427 (64.2)	826 (3.7)	3,605 (16.0)	3,025 (13.5)	6,520 (29.0)	5,220 (23.2)
		5 (127)		7 1/2 (191)	19,501 (86.7)	1,027 (4.6)	4,875 (21.7)			
		9 3/8 (238)		7 1/2 (191)	•	•	4,875 (21.7)			
3/4 (19.1)	7/8	3 3/8 (86)	10 1/8 (257)	5 1/8 (130)	21,180 (94.2)	942 (4.2)	5,295 (23.6)	4,360 (19.4)	9,390 (41.8)	6,385 (28.4)
		6 3/4 (171)		10 1/8 (257)	25,244 (112.3)	2,538 (11.3)	6,310 (28.1)			
		11 1/4 (286)		10 1/8 (257)	•	•	6,310 (28.1)			
7/8 (22.2)	1	3 7/8 (98)	11 5/8 (295)	5 7/8 (149)	28,333 (126.0)	2,406 (10.7)	7,085 (31.5)	5,925 (26.4)	12,770 (56.8)	8,685 (38.6)
		7 3/4 (197)		11 5/8 (295)	33,533 (149.2)	2,793 (12.4)	8,385 (37.3)			
		13 1/8 (333)		11 5/8 (295)	•	•	8,385 (37.3)			
1 (25.4)	1 1/8	4 1/2 (114)	13 1/2 (343)	6 3/4 (171)	30,520 (135.8)	2,166 (9.6)	7,630 (33.9)	7,740 (34.4)	16,680 (74.2)	11,345 (50.5)
		9 (229)		13 1/2 (343)	50,187 (223.2)	2,176 (9.7)	12,545 (55.8)			
		15 (381)		13 1/2 (343)	•	•	12,545 (55.8)			
1 1/8 (28.6)	1 1/4	5 1/8 (130)	15 1/4 (387)	7 3/4 (197)	41,325 (183.8)	•	10,330 (46.0)	9,800 (43.6)	21,125 (94.0)	14,365 (63.9)
		10 1/8 (257)		15 1/4 (387)	58,285 (259.3)	•	14,570 (64.8)			
		16 7/8 (429)		15 1/4 (387)	•	•	14,570 (64.8)			
1 1/4 (31.8)	1 3/8	5 5/8 (143)	16 7/8 (429)	8 1/2 (216)	52,130 (231.9)	3,969 (17.7)	13,035 (58.0)	12,100 (53.8)	26,075 (116.0)	17,730 (78.9)
		11 1/4 (286)		16 7/8 (429)	66,383 (295.3)	3,948 (17.6)	16,595 (73.8)			
		18 3/4 (476)		16 7/8 (429)	•	•	16,595 (73.8)			

1. Allowable load must be the lesser of the load based on concrete edge distance or steel strength.
2. The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 49 and 51.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

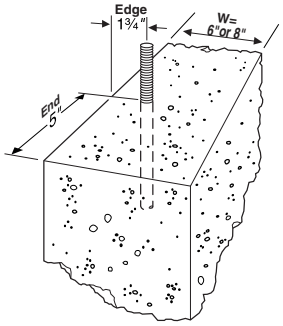
*See page 10 for an explanation of the load table icons

Tension Loads for Threaded Rod Anchors in Normal-Weight Concrete Stemwall

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Stemwall Width in. (mm)	Min. Edge Dist. in. (mm)	Min. End Dist. in. (mm)	Tension Load Based on Bond Strength f'c ≥ 2500 psi (17.2 MPa) Concrete		Tension Load Based on Steel Strength A307 (SAE 1018)
						Ultimate lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
5/8 (15.9)	3/4	10 (254.0)	6 (152.4)	1 3/4 (44.5)	5 (127.0)	13,634 (60.6)	3,410 (15.2)	5,875 (26.1)
7/8 (22.2)	1	15 (381.0)	8 (203.2)	1 3/4 (44.5)	5 (127.0)	22,664 (100.8)	5,665 (25.2)	11,500 (51.2)

1. Allowable load must be the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
5. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

*See page 10 for an explanation of the load table icons



Edge and end distances for threaded rod in concrete foundation stemwall corner installation

Shear Loads for Threaded Rod Anchors in Normal-Weight Concrete, Load Applied Parallel to Concrete Edge

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. End Dist. in. (mm)	Shear Load Based on Concrete Edge Distance f'c ≥ 2000 psi (13.8 MPa) Concrete			Shear Load Based on Steel Strength A307 (SAE 1018)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
1/2 (12.7)	5/8	4 1/4 (108.0)	1 3/4 (44.5)	8 1/2 (219.9)	8,496 (37.8)	654 (2.9)	2,125 (9.5)	1,930 (8.6)
5/8 (15.9)	3/4	5 (127.0)	1 3/4 (44.5)	10 (254.0)	8,857 (39.4)	225 (1.0)	2,215 (9.9)	3,025 (13.5)

1. Allowable load must be the lesser of the load based on concrete edge distance, steel strength or wood bearing capacity.
2. The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. Refer to allowable load-adjustment factors for spacing on page 51.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

*See page 10 for an explanation of the load table icons

SET *High Strength Epoxy-Tie® Anchoring Adhesive*

SIMPSON Strong-Tie ANCHOR SYSTEMS

Tension Loads for Rebar Dowels in Normal-Weight Concrete

*See page 10 for an explanation of the load table icons

Rebar Size No. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength						Tension Load Based on Steel Strength
					f'c ≥ 2000 psi (13.8 MPa) Concrete			f'c ≥ 4000 psi (27.6 MPa) Concrete			ASTM A615 Grade 60 Rebar
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Allowable lbs. (kN)
#4 (12.7)	5/8	4¼ (108)	6⅜ (162)	17 (432)	16,480 (73.3)	245 (1.1)	4,120 (18.3)	18,320 (81.5)	560 (2.5)	4,580 (20.4)	4,800 (21.4)
		6 (152)	9 (229)	24 (610)	19,360 (86.1)	678 (3.0)	4,840 (21.5)	19,360 (86.1)	•	4,840 (21.5)	
#5 (15.9)	3/4	5 (127)	7½ (191)	20 (508)	24,600 (109.4)	2,598 (11.6)	6,150 (27.4)	26,040 (115.8)	1,740 (7.7)	6,510 (29.0)	7,440 (33.1)
		9⅜ (238)	14⅛ (359)	37½ (953)	48,380 (215.2)	2,841 (12.6)	12,095 (53.8)	48,380 (215.2)	•	12,095 (53.8)	
#6 (19.1)	7/8	6¾ (171)	10⅛ (257)	27 (686)	38,380 (170.7)	4,044 (18.0)	9,595 (42.7)	40,500 (180.2)	1,533 (6.8)	10,125 (45.0)	10,560 (47.0)
		11¼ (286)	16⅞ (429)	45 (1143)	65,020 (289.2)	3,152 (14.0)	16,255 (72.3)	65,020 (289.2)	•	16,255 (72.3)	
#7 (22.2)	1	7¾ (197)	11⅝ (295)	31 (787)	47,760 (212.4)	1,266 (5.6)	11,940 (53.1)	47,760 (212.4)	•	11,940 (53.1)	14,400 (64.1)
		13⅛ (333)	19⅝ (498)	52½ (1334)	81,560 (362.8)	3,575 (15.9)	20,390 (90.7)	81,560 (362.8)	•	20,390 (90.7)	
#8 (25.4)	1⅛	9 (229)	13½ (343)	36 (914)	53,680 (238.8)	•	13,420 (59.7)	53,680 (238.8)	•	13,420 (59.7)	18,960 (84.3)
		15 (381)	22½ (572)	60 (1524)	94,240 (419.2)	7,520 (33.5)	23,560 (104.8)	94,240 (419.2)	•	23,560 (104.8)	
#9 (28.6)	1¼	10⅛ (257)	15¼ (387)	40½ (1029)	53,680 (238.8)	7,977 (35.5)	13,420 (59.7)	53,680 (238.8)	•	13,420 (59.7)	24,000 (106.8)
		16⅞ (429)	25⅜ (645)	67½ (1715)	111,460 (495.8)	5,753 (25.6)	27,865 (123.9)	111,460 (495.8)	•	27,865 (123.9)	
#10 (31.8)	1½	11¼ (286)	16⅞ (429)	45 (1143)	76,000 (338.1)	1,408 (6.3)	19,000 (84.5)	76,000 (338.1)	•	19,000 (84.5)	30,480 (135.6)
		18¾ (476)	28 (711)	75 (1905)	125,840 (559.8)	9,551 (42.5)	31,460 (139.9)	125,840 (559.8)	•	31,460 (139.9)	
#11 (34.9)	1⅝	12⅜ (314)	18⅝ (473)	49½ (1257)	87,500 (389.2)	3,498 (15.6)	21,875 (97.3)	87,500 (389.2)	•	21,875 (97.3)	37,440 (166.5)
		20⅝ (524)	28 (711)	82½ (2096)	132,080 (587.5)	11,297 (50.3)	33,020 (146.9)	132,080 (587.5)	•	33,020 (146.9)	

1. Allowable load must be the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 48 and 50.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
7. Anchors are not permitted to resist tension forces in overhead or wall installations unless proper consideration is given to fire exposure and elevated-temperature conditions.
8. Allowable load based on bond strength may be interpolated for concrete compressive strengths between 2000 psi and 4000 psi.

Shear Loads for Rebar Dowels in Normal-Weight Concrete

*See page 10 for an explanation of the load table icons

Rebar Size No. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Shear Load Based on Concrete Edge Distance			Shear Load Based on Steel Strength
					f'c ≥ 2000 psi (13.8 MPa) Concrete			ASTM A615 Grade 60 Rebar
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allow. lbs. (kN)	Allowable lbs. (kN)
#4 (12.7)	5/8	4¼ (108)	6⅜ (162)	6⅜ (162)	15,156 (67.4)	542 (2.4)	3,790 (16.9)	3,060 (13.6)
		6 (152)			15,156 (67.4)	•	3,790 (16.9)	
#5 (15.9)	3/4	5 (127)	7½ (191)	7½ (191)	24,245 (107.8)	1,121 (5.0)	6,060 (27.0)	4,740 (21.1)
		9⅜ (238)			24,245 (107.8)	•	6,060 (27.0)	
#6 (19.1)	7/8	6¾ (171)	10⅛ (257)	10⅛ (257)	33,195 (147.7)	2,314 (10.3)	8,300 (36.9)	6,730 (29.9)
		11¼ (286)			33,195 (147.7)	•	8,300 (36.9)	
#7 (22.2)	1	7¾ (197)	11⅝ (295)	11⅝ (295)	47,017 (209.1)	2,227 (9.9)	11,755 (52.3)	9,180 (40.8)
		13⅛ (333)			47,017 (209.1)	•	11,755 (52.3)	
#8 (25.4)	1⅛	9 (229)	13½ (343)	13½ (343)	58,880 (261.9)	•	14,720 (65.5)	12,085 (53.8)
		15 (381)			58,880 (261.9)	•	14,720 (65.5)	
#9 (28.6)	1¼	10⅛ (257)	15¼ (387)	15¼ (387)	58,880 (261.9)	1,487 (6.6)	14,720 (65.5)	15,300 (68.1)
		16⅞ (429)			58,880 (261.9)	•	14,720 (65.5)	
#10 (31.8)	1½	11¼ (286)	16⅞ (429)	16⅞ (429)	65,840 (292.9)	7,120 (31.7)	16,460 (73.2)	19,430 (86.4)
		18¾ (476)			65,840 (292.9)	•	16,460 (73.2)	
#11 (34.9)	1⅝	12⅜ (314)	18⅝ (473)	18⅝ (473)	81,400 (362.1)	9,596 (42.7)	20,350 (90.5)	23,870 (106.2)
		20⅝ (524)			81,400 (362.1)	•	20,350 (90.5)	

1. Allowable load must be the lesser of the load based on concrete edge distance or steel strength.
2. The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
3. Allowable loads may be increased by 5 percent for short-term loading due to wind or seismic forces where permitted by code.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 49 and 51.
5. Refer to in-service temperature Sensitivity chart for allowable load adjustment for temperature.
6. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

Tension Loads for Threaded Rod Anchors in Sand-Lightweight Concrete

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength			Tension Load Based on Steel Strength		
					f'c ≥ 3000 psi (20.7 MPa) Lightweight Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
⅜ (9.5)	½	1¾ (44)	2⅝ (67)	3½ (89)	2,400 (10.7)	540 (2.4)	600 (2.7)	2,105 (9.4)	4,535 (20.2)	3,630 (16.1)
		3½ (89)	5¼ (133)	7 (178)	6,220 (27.7)	422 (1.9)	1,555 (6.9)			
½ (12.7)	⅝	2⅛ (54)	3⅛ (79)	4¼ (108)	2,900 (12.9)	550 (2.4)	725 (3.2)	3,750 (16.7)	8,080 (35.9)	6,470 (28.8)
		4¼ (108)	6⅜ (162)	8½ (216)	6,720 (29.9)	1,087 (4.8)	1,680 (7.5)			
⅝ (15.9)	¾	2½ (64)	3¾ (95)	5 (127)	4,820 (21.4)	327 (1.5)	1,205 (5.4)	5,875 (26.1)	12,660 (56.3)	10,120 (45.0)
		5 (127)	7½ (191)	10 (254)	9,160 (40.7)	1,677 (7.5)	2,290 (10.2)			

1. Allowable load must be the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. 100% of the allowable load is permitted at critical spacing. No reduction in spacing is allowed.
5. Refer to allowable load-adjustment factors for edge distance on page 52.
6. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
7. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
8. Anchors are not permitted to resist tension forces in overhead or wall installations unless proper consideration is given to fire-exposure and elevated-temperature conditions.

*See page 10 for an explanation of the load table icons

Shear Loads for Threaded Rod Anchors in Sand-Lightweight Concrete

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Shear Load Based on Concrete Edge Distance			Shear Load Based on Steel Strength		
					f'c ≥ 3000 psi (20.7 MPa) Lightweight Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
					Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
⅜ (9.5)	½	1¾ (44)	2⅝ (67)	3½ (89)	2,364 (10.5)	129 (0.6)	590 (2.6)	1,085 (4.8)	2,340 (10.4)	1,870 (8.3)
		3½ (89)	5¼ (133)	7 (178)	5,784 (25.7)	547 (2.4)	1,445 (6.4)			
½ (12.7)	⅝	2⅛ (54)	3⅛ (79)	4¼ (108)	2,948 (13.1)	224 (1.0)	735 (3.3)	1,930 (8.6)	4,160 (18.5)	3,330 (14.8)
		4¼ (108)	6⅜ (162)	8½ (216)	8,436 (37.5)	891 (4.0)	2,110 (9.4)			
⅝ (15.9)	¾	2½ (64)	3¾ (95)	5 (127)	3,584 (15.9)	1,072 (4.8)	895 (4.0)	3,025 (13.5)	6,520 (29.0)	5,220 (23.2)
		5 (127)	7½ (191)	10 (254)	11,784 (52.4)	650 (2.9)	2,945 (13.1)			

1. Allowable load must be the lesser of the load based on concrete edge distance or steel strength.
2. The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
3. Allowable loads may be increased by 33⅓ percent for short-term loading due to wind or seismic forces where permitted by code.
4. 100% of the allowable load is permitted at critical spacing. No reduction in spacing is allowed.
5. Refer to allowable load-adjustment factors for edge distance on page 52.
6. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
7. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

*See page 10 for an explanation of the load table icons

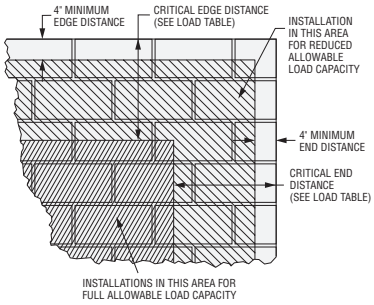
Tension and Shear Loads for Threaded Rod Anchors in 8-inch Lightweight, Medium-Weight and Normal-Weight Grout-Filled CMU

Rod Dia. in. (mm)	Drill Bit Dia. in.	Min. Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical End Dist. in. (mm)	Critical Spacing Dist. in. (mm)	8-inch Grout-Filled CMU Allowable Loads Based on CMU Strength			
						Tension		Shear	
						Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)
Anchor Installed Anywhere on the Face of the CMU Wall (See Figure 1)									
½ (12.7)	⅝	4¼ (108)	17 (432)	17 (432)	17 (432)	6,496 (28.9)	1,300 (5.8)	6,766 (30.1)	1,355 (6.0)
⅝ (15.9)	¾	5 (127)	20 (508)	20 (508)	20 (508)	8,232 (36.6)	1,645 (7.3)	13,676 (60.8)	2,735 (12.2)
¾ (19.1)	⅞	6¾ (171)	27 (686)	27 (686)	27 (686)	15,656 (69.6)	3,130 (13.9)	17,578 (78.2)	3,515 (15.6)

1. Threaded rods must comply with ASTM A 307 minimum.
2. Values for 8-inch wide CMU Grade N, Type II concrete masonry units conforming to UBC Standard 21-4 or ASTM C90. The masonry units, when grouted, must be fully grouted with grout complying with UBC Section 2103.4, or IBC Section 2103.12. Mortar is prepared in accordance with Section 2103.3 of the UBC and UBC Standard 21-15, or IBC Section 2103.8. The minimum specified compressive strength of masonry, f'm, at 28 days is 1,500 psi.
3. Embedment depth is measured from the outside face of the concrete masonry unit.
4. Allowable loads may be increased 33⅓% for short-term loading due to wind forces or seismic forces where permitted by code.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC. For installations under the UBC use a safety factor of 4.0 (multiply the tabulated allowable loads by 1.25).
7. Refer to allowable load-adjustment factors for end distance, edge distance and spacing on page 53.

*See page 10 for an explanation of the load table icons

Figure 1

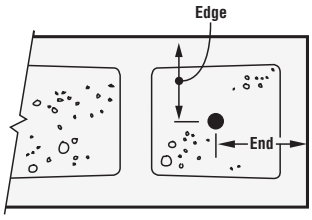


Shaded Area = Placement for Full and Reduced Allowable Load Capacity in Grout-Filled CMU

Tension and Shear Loads for Threaded Rod Anchors in 6 and 8-inch Lightweight, Medium-Weight and Normal-Weight Grout-Filled CMU Anchor Installed in Cell Opening (Top of Wall) See Figure 2

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. End Dist. in. (mm)	Min. Spacing Dist. in. (mm)	6 and 8-inch Grout-Filled CMU Allowable Loads Based on CMU Strength			
						Tension		Shear	
						Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)
Allowable Tension and Shear Values EXCLUDING Earthquake Loads[1]									
⅝ (15.9)	¾	5 (127)	3 (76)	3½ (89)	20 (508)	12,573 (55.9)	2,515 (11.2)	9,530 (42.4)	1,905 (8.5)
¾ (19.1)	⅞	5 (127)	3 (76)	3½ (89)	20 (508)	•	2,515 (11.2)	•	1,905 (8.5)
⅞ (22.2)	1	12 (305)	2 (51)	3⅞ (98)	48 (1219)	8,908 (39.6)	1,780 (7.9)	•	•
Allowable Tension and Shear Values INCLUDING Earthquake Loads[2]									
⅝ (15.9)	¾	5 (127)	3 (76)	3½ (89)	20 (508)	6,500 (28.9)	1,300 (5.8)	6,780 (30.2)	1,355 (6.0)
¾ (19.1)	⅞	5 (127)	3 (76)	3½ (89)	20 (508)	•	1,300 (5.8)	•	1,355 (6.0)

Figure 2



Anchor installed in cell opening (top of wall)

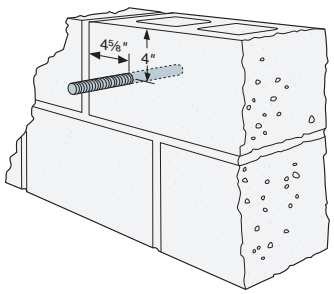
1. Allowable Tension and Shear Values EXCLUDING Earthquake Loads may not be increased for wind forces.
2. Allowable Tension and Shear Values INCLUDING Earthquake Loads may be increased 33⅓% for wind forces or seismic forces where permitted by code.
3. Also see notes 1–3 and 5–7 below.

Tension and Shear Loads for Threaded Rod Anchors in Lightweight, Medium-Weight and Normal-Weight Hollow CMU

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. End Dist. in. (mm)	6 and 8-inch Hollow CMU Allowable Loads Based on CMU Strength			
					Tension		Shear	
					Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)
Anchor Installed in Face Shell w/Simpson Strong-Tie® Epoxy-Tie Carbon-Steel Screen Tube								
⅝ (15.9)	⅞	3½ (88.9)	4 (101.6)	4⅝ (117.5)	881 (3.9)	175 (0.8)	1,440 (6.4)	290 (1.3)
¾ (19.1)	1	3½ (88.9)	4 (101.6)	4⅝ (117.5)	•	175 (0.8)	•	290 (1.3)

1. Threaded rods must comply with ASTM A 307 minimum.
2. Values for 6 and 8-inch wide CMU Grade N, Type II concrete masonry units conforming to UBC Standard 21-4 or ASTM C90. The masonry units, when grouted, must be fully grouted with grout complying with UBC Section 2103.4, or IBC Section 2103.12. Mortar is prepared in accordance with Section 2103.3 of the UBC and UBC Standard 21-15, or IBC Section 2103.8. The minimum specified compressive strength of masonry, f'm, at 28 days is 1,500 psi.
3. Embedment depth is measured from the outside face of the concrete masonry unit for installations through a face shell.
4. Allowable loads may not be increased for short-term loading due to wind forces or seismic forces.
5. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
6. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC. For installations under the UBC use a safety factor of 4.0 (multiply the tabulated allowable loads by 1.25).
7. Anchors must be spaced a minimum distance of four times the anchor embedment.
8. Screen tubes not for use with SET1.7KT or SET1.7KTA.
9. Set drill to rotation-only mode when drilling into hollow CMU.

Figure 3



Anchor installed in face shell w/ screen tube in hollow cell

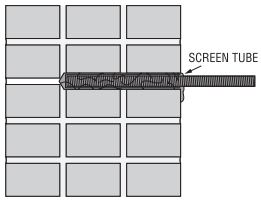
Tension and Shear Loads for Installations in Unreinforced Brick Masonry Walls Minimum URM Wall Thickness is 13" (3 wythes thick)

Rod/Rebar Dia./Size in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Min. Edge/End Dist. in. (mm)	Min. Vertical Spacing Dist. in. (mm)	Min. Horiz. Spacing Dist. in. (mm)	Tension Load Based on URM Strength Minimum Net Mortar Strength = 50 psi Allowable lbs. (kN)	Shear Load Based on URM Strength Minimum Net Mortar Strength = 50 psi Allowable lbs. (kN)
Configuration A (Simpson Strong-Tie® ETS or ETSP Screen Tube Required)							
¾ (19.1)	1	8 (203)	16 (406)	16 (406)	16 (406)	•	1,000 (4.4)
#5 (15.9)	1	8 (203)	16 (406)	16 (406)	16 (406)	•	750 (3.3)
#6 (19.1)	1	8 (203)	16 (406)	16 (406)	16 (406)	•	1,000 (4.4)
Configuration B (Simpson Strong-Tie ETS or ETSP Screen Tube Required)							
¾ (19.1)	1	13 (330)	16 (406)	16 (406)	16 (406)	1,200 (5.3)	1,000 (4.4)
Configuration C (Simpson Strong-Tie ETS Screen Tube and AST Steel Sleeve Required)							
⅝ (15.9)	1	**	16 (406)	16 (406)	16 (406)	1,200 (5.3)	750 (3.3)

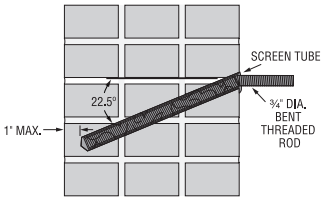
1. Threaded rods must comply with ASTM A 307 minimum.
2. All holes are drilled with a 1" diameter carbide-tipped drill bit with the drill set in the rotation-only mode.
3. The unreinforced brick walls must have a minimum thickness of 13 inches (three wythes of brick).
4. The allowable load is applicable only where in-place shear tests indicate minimum net mortar strength of 50 psi.
5. The allowable load for Configuration B and C anchors subjected to a combined tension and shear load is determined by assuming a straight-line relationship between allowable tension and shear.
6. The anchors installed in unreinforced brick walls are limited to resisting seismic or wind forces only.
7. Configuration A has a straight threaded rod or rebar embedded 8 inches into the wall with a 3½2" diameter by 8-inch long screen tube (part # ETS758 or ETS758P). This configuration is designed to resist shear loads only.
8. Configuration B has a ¾" threaded rod bent and installed at a 22.5-degree angle and installed 13 inches into the wall, to within 1-inch (maximum) of the exterior wall surface. This configuration is designed to resist tension and shear loads. The pre-bent threaded rod is installed with a 3½2" diameter by 13-inch long screen tube (part # ETS7513 or ETS7513P).
9. Configuration C is designed to resist tension and shear forces. It consists of a ⅝" diameter, ASTM A 307 threaded rod and an 8" long sleeve (part # AST800) and a 3½2" diameter by 8-inch long screen tube (part # ETS758). The steel sleeve has a plastic plug in one end. A 6" by 6" by ⅜" thick ASTM A 36 steel plate is located on the back face of the wall.
10. Special inspection requirements are determined by local jurisdiction and must be confirmed by the local building official.
11. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
12. Screen tubes not for use with SET1.7KT or SET1.7KTA.

*See page 10 for explanation of the load table icons

Configuration A (Shear)



Configuration B (Tension & Shear)



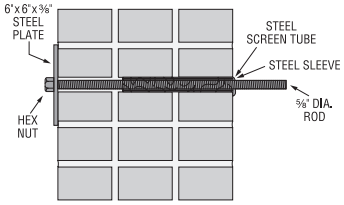
Tension and Shear Loads for Threaded Rod Anchors in Lightweight, Medium-Weight and Normal-Weight Hollow CMU

Rod Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	8-inch Hollow CMU Allowable Loads Based on CMU Strength Tension Ultimate lbs. (kN)	Tension Allowable lbs. (kN)	Shear Ultimate lbs. (kN)	Shear Allowable lbs. (kN)
Anchor Installed in Face Shell w/Simpson ETSP (Plastic) Screen Tube								
⅜ (9.5)	9⁄16	3 (76.2)	12 (305)	8 (203)	1,500 (6.7)	300 (1.3)	1,280 (5.7)	255 (1.1)
½ (12.7)	¾	3 (76.2)	12 (305)	8 (203)	1,500 (6.7)	300 (1.3)	1,280 (5.7)	255 (1.1)
⅝ (15.9)	⅞	3 (76.2)	12 (305)	8 (203)	1,500 (6.7)	300 (1.3)	1,380 (6.1)	275 (1.2)

1. Threaded rods must comply with ASTM A 307 minimum.
2. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC. For installations under the UBC use a safety factor of 4.0 (multiply the tabulated allowable loads by 1.25).
3. Edge distances may be reduced to 4" with a corresponding 32% reduction in tension capacity. Shear capacity is unaffected.
4. Values for 8-inch wide CMU Grade N, Type II, lightweight, medium-weight and normal-weight concrete masonry units conforming to UBC Standard 21-4 or ASTM C90 with min. compressive strength of 1,900 psi and 1¼" thick face shell.
5. Mortar is prepared in accordance with UBC Section 2103.3 and UBC Standard 21-15, or IBC Section 2103.8.
6. Embedment depth is measured from the outside face of the concrete masonry unit.
7. Refer to in-service temperature sensitivity chart for allowable load adjustment for temperature.
8. Allowable loads may not be increased for short-term loading due to wind or seismic forces. Wall design must satisfy applicable design standards and be capable of withstanding applied loads.
9. Screen tubes not for use with SET1.7KT or SET1.7KTA.

*See page 10 for an explanation of the load table icons

Configuration C (Tension & Shear)



Installation Instructions for Configuration C:

1. Drill hole perpendicular to the wall to a depth of 8" with a 1" diameter carbide-tipped drill bit (rotation only mode).
2. Clean hole with oil-free compressed air and a nylon brush.
3. Fill 8" steel screen tube with mixed adhesive and insert into hole.
4. Insert steel sleeve slowly into screen tube (adhesive will displace).
5. Allow adhesive to cure (see cure schedule).
6. Drill through plastic plug in (inside) end of steel sleeve with ⅝" bit.
7. Drill completely through the wall with ⅝" carbide tipped concrete drill bit (rotation mode only).
8. Insert ⅝" rod through hole and attach metal plate and nut.

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Normal-Weight Concrete: Edge Distance, Tension Load

How to use these charts:

1. The following tables are for reduced edge distance.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the edge distance (C_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_c) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple edges are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension Load Based on Bond Strength values only.

Edge Distance Tension (f_c)

*See page 10 for an explanation of the load table icons

Edge Dist. C_{act} (in.)	Dia.	3/8			1/2			5/8			3/4		
	Rebar					#4			#5			#6	
	E	1¾	3½	4½	2⅛	4¼	6	2½	5	9⅜	3⅜	6¾	11¼
	C_{cr}	2⅝	5¼	6¾	3¼	6⅜	9	3¾	7½	14⅛	5⅛	10⅛	16⅞
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾
	f_{cmin}	**0.65**	**0.65**	**0.69**	**0.65**	**0.65**	**0.59**	**0.48**	**0.48**	**0.64**	**0.48**	**0.48**	**0.57**
1¾		0.65	0.65	0.69	0.65	0.65	0.59	0.48	0.48	0.64	0.48	0.48	0.57
2		0.75	0.68	0.71	0.71	0.67	0.60	0.55	0.50	0.65	0.52	0.50	0.58
3		1.00	0.78	0.77	0.95	0.74	0.66	0.81	0.59	0.68	0.68	0.56	0.61
4			0.88	0.83	1.00	0.82	0.72	1.00	0.68	0.71	0.83	0.62	0.63
5			0.98	0.89		0.90	0.77		0.77	0.73	0.99	0.68	0.66
6			1.00	0.95		0.97	0.83		0.86	0.76	1.00	0.74	0.69
7				1.00		1.00	0.89		0.95	0.79		0.81	0.72
8							0.94		1.00	0.82		0.87	0.75
9							1.00			0.85		0.93	0.78
10										0.88		0.99	0.80
11										0.91		1.00	0.83
12										0.94			0.86
14										1.00			0.92
16													0.98
17													1.00

See Notes Below

Edge Distance Tension (f_c) (cont'd)

Edge Dist. C_{act} (in.)	Dia.	7/8			1			1⅛			1¼				
	Rebar		#7			#8			#9			#10		#11	
	E	3⅞	7¾	13⅛	4½	9	15	5⅛	10⅛	16⅞	5⅝	11¼	18¾	12⅜	20⅝
	C_{cr}	5⅞	11⅝	19⅝	6¾	13½	22½	7¾	15¼	25⅜	8½	16⅞	28⅛	18⅝	28
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾
	f_{cmin}	**0.48**	**0.48**	**0.52**	**0.48**	**0.48**	**0.47**	**0.58**	**0.58**	**0.51**	**0.58**	**0.58**	**0.51**	**0.58**	**0.51**
1¾		0.48	0.48	0.52	0.48	0.48	0.47								
2¾		0.61	0.53	0.55	0.58	0.52	0.50	0.58	0.58	0.51	0.58	0.58	0.51	0.58	0.51
4		0.77	0.60	0.58	0.71	0.58	0.53	0.69	0.62	0.54	0.67	0.62	0.53	0.61	0.53
6		1.00	0.70	0.63	0.92	0.67	0.58	0.85	0.69	0.58	0.82	0.68	0.57	0.67	0.57
8			0.81	0.69	1.00	0.76	0.63	1.00	0.76	0.62	0.97	0.74	0.61	0.72	0.61
10			0.91	0.74		0.85	0.68		0.82	0.67	1.00	0.80	0.65	0.77	0.65
12			1.00	0.80		0.93	0.73		0.89	0.71		0.86	0.69	0.82	0.69
14				0.85		1.00	0.78		0.96	0.75		0.91	0.73	0.88	0.73
16				0.90			0.83		1.00	0.80		0.97	0.77	0.93	0.77
18				0.96			0.89			0.84		1.00	0.80	0.98	0.81
20				1.00			0.94			0.88			0.84	1.00	0.84
24							1.00			0.97			0.92		0.92
28										1.00			1.00		1.00

1. E = Embedment depth (inches).
2. C_{act} = actual edge distance at which anchor is installed (inches).
3. C_{cr} = critical edge distance for 100% load (inches).
4. C_{min} = minimum edge distance for reduced load (inches).
5. f_c = adjustment factor for allowable load at actual edge distance.
6. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
7. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
8. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

*See page 10 for an explanation of the load table icons

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Normal-Weight Concrete: Edge Distance, Shear Load

How to use these charts:

1. The following tables are for reduced edge distance.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the edge distance (C_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_c) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple edges are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Shear Load Based on Concrete Edge Distance values only.

Edge Distance Shear (f_c)

Edge Dist. C_{act} (in.)	Dia.	3/8			1/2			1/2			5/8		5/8		3/4			3/4
	Rebar						#4						#5				#6	
	E	1¾	3½	4½	2⅛	4¼	4¼	6	2½	5	5	9⅜	3⅜	6¾	6¾	11¼		
	C_{cr}	5¼	5¼	5¼	6⅜	6⅜	6⅜	6⅜	7½	7½	7½	7½	10⅛	10⅛	10⅛	10⅛		
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾		
	f_{cmin}	**0.49**	**0.32**	**0.35**	**0.37**	**0.20**	**0.25**	**0.24**	**0.18**	**0.15**	**0.21**	**0.19**	**0.16**	**0.16**	**0.18**	**0.15**		
1¾		0.49	0.32	0.35	0.37	0.20	0.25	0.24	0.18	0.15	0.21	0.19	0.16	0.16	0.18	0.15		
2		0.53	0.37	0.40	0.40	0.24	0.29	0.28	0.22	0.19	0.24	0.23	0.19	0.19	0.20	0.18		
3		0.67	0.56	0.58	0.54	0.42	0.45	0.45	0.36	0.33	0.38	0.37	0.29	0.29	0.30	0.28		
4		0.82	0.76	0.77	0.68	0.59	0.61	0.61	0.50	0.48	0.52	0.51	0.39	0.39	0.40	0.38		
5		0.96	0.95	0.95	0.81	0.76	0.78	0.77	0.64	0.63	0.66	0.65	0.49	0.49	0.50	0.48		
6		1.00	1.00	1.00	0.95	0.94	0.94	0.94	0.79	0.78	0.79	0.79	0.59	0.59	0.60	0.58		
7					1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.69	0.69	0.69	0.68		
8									1.00	1.00	1.00	1.00	0.79	0.79	0.79	0.78		
9													0.89	0.89	0.89	0.89		
10													0.99	0.99	0.99	0.99		
11													1.00	1.00	1.00	1.00		

See Notes Below

Edge Distance Shear (f_c) (cont'd)

Edge Dist. C_{act} (in.)	Dia.	7/8			7/8	1		1		1⅛			1¼				
	Rebar			#7			#8				#9			#10		#11	
	E	3⅞	7¾	7¾	13⅛	4½	9	9	15	5⅛	10⅛	16⅞	5⅝	11¼	18¾	12⅜	20⅝
	C_{cr}	11⅝	11⅝	11⅝	11⅝	13½	13½	13½	13½	15¼	15¼	15¼	16⅞	16⅞	16⅞	18⅝	18⅝
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾
	f_{cmin}	**0.14**	**0.13**	**0.14**	**0.10**	**0.14**	**0.10**	**0.12**	**0.10**	**0.17**	**0.16**	**0.12**	**0.17**	**0.16**	**0.12**	**0.16**	**0.12**
1¾		0.14	0.13	0.14	0.10	0.14	0.10	0.12	0.10								
2¾		0.23	0.22	0.23	0.19	0.21	0.18	0.19	0.18	0.17	0.16	0.12	0.17	0.16	0.12	0.16	0.12
3		0.25	0.24	0.25	0.21	0.23	0.20	0.21	0.20	0.19	0.18	0.14	0.18	0.17	0.14	0.17	0.13
4		0.34	0.33	0.34	0.31	0.30	0.27	0.29	0.27	0.25	0.24	0.21	0.24	0.23	0.20	0.23	0.19
5		0.42	0.42	0.42	0.40	0.38	0.35	0.36	0.35	0.32	0.31	0.28	0.30	0.29	0.26	0.28	0.24
6		0.51	0.50	0.51	0.49	0.45	0.43	0.44	0.43	0.39	0.38	0.35	0.36	0.35	0.32	0.33	0.30
7		0.60	0.59	0.60	0.58	0.52	0.50	0.51	0.50	0.45	0.45	0.42	0.42	0.41	0.38	0.38	0.36
8		0.68	0.68	0.68	0.67	0.60	0.58	0.59	0.58	0.52	0.51	0.49	0.48	0.47	0.45	0.44	0.41
9		0.77	0.77	0.77	0.76	0.67	0.66	0.66	0.66	0.59	0.58	0.56	0.54	0.53	0.51	0.49	0.47
10		0.86	0.86	0.86	0.85	0.74	0.73	0.74	0.73	0.65	0.65	0.63	0.60	0.59	0.57	0.54	0.52
11		0.95	0.94	0.95	0.94	0.82	0.81	0.81	0.81	0.72	0.71	0.70	0.65	0.65	0.63	0.60	0.58
12		1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.78	0.78	0.77	0.71	0.71	0.70	0.65	0.63
13						0.96	0.96	0.96	0.96	0.85	0.85	0.84	0.77	0.77	0.76	0.70	0.69
14						1.00	1.00	1.00	1.00	0.92	0.92	0.91	0.83	0.83	0.82	0.76	0.74
15										0.98	0.98	0.98	0.89	0.89	0.88	0.81	0.80
16										1.00	1.00	1.00	0.95	0.95	0.95	0.86	0.85
17													1.00	1.00	1.00	0.91	0.91
18⅝																1.00	1.00

1. E = Embedment depth (inches).
2. C_{act} = actual edge distance at which anchor is installed (inches).
3. C_{cr} = critical edge distance for 100% load (inches).
4. C_{min} = minimum edge distance for reduced load (inches).
5. f_c = adjustment factor for allowable load at actual edge distance.
6. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
7. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
8. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

*See page 10 for an explanation of the load table icons

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Normal-Weight Concrete: Spacing, Tension Load

How to use these charts:

1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the spacing (S_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple spacings are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension Load Based on Bond Strength values only.

Spacing Tension (f_s)

*See page 10 for an explanation of the load table icons

S_{act} (in.)	Dia.	⅜			½			⅝			¾		
	Rebar					#4			#5			#6	
	E	1¾	3½	4½	2⅛	4¼	6	2½	5	9⅜	3⅜	6¾	11¼
	S_{cr}	7	14	18	8½	17	24	10	20	37½	13½	27	45
	S_{min}	⅞	1¾	2¼	1⅛	2⅛	3	1¼	2½	4¾	1¾	3⅜	5⅝
	f_{smin}	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**
⅞		0.52											
1		0.53											
2		0.61	0.89		0.58			0.56			0.53		
4		0.76	0.91	0.91	0.71	0.90	0.90	0.67	0.90		0.61	0.89	
6		0.92	0.93	0.92	0.84	0.92	0.91	0.78	0.91	0.90	0.69	0.90	0.90
8		1.00	0.95	0.94	0.97	0.93	0.92	0.89	0.92	0.91	0.78	0.91	0.91
10			0.96	0.95	1.00	0.95	0.93	1.00	0.94	0.92	0.86	0.92	0.91
12			0.98	0.96		0.96	0.94		0.95	0.92	0.94	0.93	0.92
14			1.00	0.97		0.98	0.95		0.96	0.93	1.02	0.94	0.92
16				0.99		0.99	0.96		0.97	0.93		0.95	0.93
18				1.00		1.00	0.97		0.99	0.94		0.96	0.93
20							0.98		1.00	0.95		0.97	0.94
24							1.00			0.96		0.99	0.95
28										0.97		1.00	0.96
32										0.98			0.97
36										1.00			0.98
40										1.00			0.99
45													1.00

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. f_s = adjustment factor for allowable load at actual spacing distance.
6. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
7. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
8. $f_s = f_{smin} + [(1 - f_{smin}) (S_{act} - S_{min}) / (S_{cr} - S_{min})]$.

Spacing Tension (f_s) (cont'd)

*See page 10 for an explanation of the load table icons

S_{act} (in.)	Dia.	⅞			1			1⅛			1¼				
	Rebar		#7			#8			#9			#10		#11	
	E	3⅞	7¾	13⅛	4½	9	15	5⅛	10⅛	16⅞	5⅝	11¼	18¾	12⅜	20⅝
	S_{cr}	15½	31	52½	18	36	60	20½	40½	67½	22½	45	75	49½	82½
	S_{min}	2	3⅞	6⅝	2¼	4½	7½	2⅝	5⅛	8½	2⅞	5⅝	9⅜	6¼	10⅜
	f_{smin}	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**	**0.52**	**0.89**	**0.90**	**0.89**	**0.90**
2		0.52													
3		0.56			0.54			0.53			0.52				
4		0.59	0.89		0.57			0.56			0.55				
5		0.63	0.89		0.60	0.89		0.58			0.57				
6		0.66	0.90		0.63	0.90		0.61	0.89		0.60	0.89			
8		0.73	0.91	0.90	0.70	0.90	0.90	0.66	0.90		0.65	0.90		0.89	
10		0.80	0.91	0.91	0.76	0.91	0.90	0.72	0.91	0.90	0.69	0.90	0.90	0.90	
12		0.88	0.92	0.91	0.82	0.92	0.91	0.77	0.91	0.91	0.74	0.91	0.90	0.90	0.90
14		0.95	0.93	0.92	0.88	0.92	0.91	0.83	0.92	0.91	0.79	0.91	0.91	0.91	0.91
16		1.00	0.94	0.92	0.94	0.93	0.92	0.88	0.92	0.91	0.84	0.92	0.91	0.91	0.91
20			0.96	0.93	1.00	0.94	0.92	0.99	0.94	0.92	0.94	0.93	0.92	0.92	0.91
24			0.97	0.94		0.96	0.93	1.00	0.95	0.93	1.00	0.94	0.92	0.94	0.92
28			0.99	0.95		0.97	0.94		0.96	0.93		0.95	0.93	0.95	0.92
32			1.00	0.96		0.99	0.95		0.97	0.94		0.96	0.93	0.96	0.93
36				0.96		1.00	0.95		0.99	0.95		0.97	0.94	0.97	0.94
40				0.97			0.96		1.00	0.95		0.99	0.95	0.98	0.94
50				0.99			0.98			0.97		1.00	0.96	1.00	0.95
60				1.00			1.00			0.99			0.98		0.97
70										1.00			0.99		0.98
75													1.00		0.99
82½															1.00

See Notes Above

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Normal-Weight Concrete: Spacing, Shear Load

How to use these charts:

1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the spacing (S_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple spacings are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Shear Load Based on Concrete Edge Distance values only.

Spacing Shear (f_s)

*See page 10 for an explanation of the load table icons

S_{act} (in.)	Dia.	⅜		½		⅝		¾		⅞	
	Rebar				#4		#5		#6		#7
	E	1¾	3½	2⅛	4¼	2½	5	3⅜	6¾	3⅞	7¾
	S_{cr}	2⅝	5¼	3¼	6⅜	3¾	7½	5⅛	10⅛	5⅞	11⅝
	S_{min}	⅞	1¾	1⅛	2⅛	1¼	2½	1¾	3⅜	2	3⅞
	f_{smin}	**0.90**	**0.83**	**0.90**	**0.83**	**0.90**	**0.83**	**0.90**	**0.83**	**0.90**	**0.83**
⅞		0.90									
1		0.91									
1½		0.94		0.92		0.91					
2		0.96	0.84	0.94		0.93		0.91		0.90	
2½		0.99	0.87	0.96	0.85	0.95	0.83	0.92		0.91	
3		1.00	0.89	0.99	0.87	0.97	0.85	0.94		0.93	
3½			0.92	1.00	0.89	0.99	0.86	0.95	0.83	0.94	
4			0.94		0.91	1.00	0.88	0.97	0.85	0.95	0.83
5			0.99		0.95		0.92	1.00	0.87	0.98	0.85
6			1.00		0.99		0.95		0.90	1.00	0.88
7					1.00		0.98		0.92		0.90
8							1.00		0.95		0.92
9									0.97		0.94
10									1.00		0.96
12											1.00
14											
16											
17											
18⅝											

See Notes Below

Spacing Shear (f_s) (cont'd)

*See page 10 for an explanation of the load table icons

S_{act} (in.)	Dia.	1		1⅛		1¼		
	Rebar		#8		#9		#10	#11
	E	4½	9	5⅛	10⅛	5⅝	11¼	12⅜
	S_{cr}	6¾	13½	7¾	15¼	8½	16⅞	18⅝
	S_{min}	2¼	4½	2⅝	5⅛	2⅞	5⅝	6¼
	f_{smin}	**0.90**	**0.83**	**0.90**	**0.83**	**0.90**	**0.83**	**0.83**
⅞								
1								
1½								
2								
2½		0.91						
3		0.92		0.91		0.90		
3½		0.93		0.92		0.91		
4		0.94		0.93		0.92		
5		0.96	0.84	0.95		0.94		
6		0.98	0.86	0.97	0.84	0.96	0.84	
7		1.00	0.88	0.99	0.86	0.97	0.85	0.84
8			0.90	1.00	0.88	0.99	0.87	0.85
9			0.92		0.90	1.00	0.88	0.87
10			0.93		0.91		0.90	0.88
12			0.97		0.95		0.93	0.91
14			1.00		0.98		0.96	0.94
16					1.00		0.99	0.96
17							1.00	0.98
18⅝								1.00

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. f_s = adjustment factor for allowable load at actual spacing distance.
6. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
7. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
8. $f_s = f_{smin} + [(1 - f_{smin}) (S_{act} - S_{min}) / (S_{cr} - S_{min})]$.

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Sand-Lightweight Concrete: Edge Distance, Tension and Shear Loads

How to use these charts:

1. The following tables are for reduced edge distance only.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the edge distance (C_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_c) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple edges are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension Load Based on Bond Strength values or allowable Shear Load Based on Concrete Edge Distance values only.

Edge Distance Tension (f_c)

Edge Dist. C_{act} (in.)	Dia.	⅜		½		⅝	
	E	1¾	3½	2⅛	4¼	2½	5
	C_{cr}	2⅝	5¼	3⅛	6⅜	3¾	7½
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾
	f_{cmin}	**0.65**	**0.65**	**0.65**	**0.65**	**0.48**	**0.48**
1¾		0.65	0.65	0.65	0.65	0.48	0.48
2		0.75	0.68	0.71	0.67	0.55	0.50
2¼		0.85	0.70	0.78	0.69	0.61	0.53
2½		0.95	0.73	0.84	0.71	0.68	0.55
2¾		1.00	0.75	0.90	0.73	0.74	0.57
3			0.78	0.97	0.74	0.81	0.59
3¼			0.80	1.00	0.76	0.87	0.62
3½			0.83		0.78	0.94	0.64
3¾			0.85		0.80	1.00	0.66
4			0.88		0.82		0.68
4¼			0.90		0.84		0.71
4½			0.93		0.86		0.73
4¾			0.95		0.88		0.75
5			0.98		0.90		0.77
5¼			1.00		0.91		0.80
5½					0.93		0.82
5¾					0.95		0.84
6					0.97		0.86
6¼					0.99		0.89
6½					1.00		0.91
6¾							0.93
7							0.95
7¼							0.98
7½							1.00

Edge Distance Shear (f_c)

Edge Dist. C_{act} (in.)	Dia.	⅜		½		⅝	
	E	1¾	3½	2⅛	4¼	2½	5
	C_{cr}	2⅝	5¼	3⅛	6⅜	3¾	7½
	C_{min}	1¾	1¾	1¾	1¾	1¾	1¾
	f_{cmin}	**0.25**	**0.25**	**0.20**	**0.20**	**0.15**	**0.15**
1¾		0.25	0.25	0.20	0.20	0.15	0.15
2		0.46	0.30	0.35	0.24	0.26	0.19
2¼		0.68	0.36	0.49	0.29	0.36	0.22
2½		0.89	0.41	0.64	0.33	0.47	0.26
2¾		1.00	0.46	0.78	0.37	0.58	0.30
3			0.52	0.93	0.42	0.68	0.33
3¼			0.57	1.00	0.46	0.79	0.37
3½			0.63		0.50	0.89	0.41
3¾			0.68		0.55	1.00	0.45
4			0.73		0.59		0.48
4¼			0.79		0.63		0.52
4½			0.84		0.68		0.56
4¾			0.89		0.72		0.59
5			0.95		0.76		0.63
5¼			1.00		0.81		0.67
5½					0.85		0.70
5¾					0.89		0.74
6					0.94		0.78
6¼					0.98		0.82
6½					1.00		0.85
6¾							0.89
7							0.93
7¼							0.96
7½							1.00

*See page 10 for an explanation of the load table icons

1. E = Embedment depth (inches).
2. C_{act} = actual edge distance at which anchor is installed (inches).
3. C_{cr} = critical edge distance for 100% load (inches).
4. C_{min} = minimum edge distance for reduced load (inches).
5. f_c = adjustment factor for allowable load at actual edge distance.
6. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
7. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
8. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

Load-Adjustment Factors for SET Epoxy-Tie® Adhesive in Face of Wall Installation in 8" Grout-Filled CMU: End / Edge Distance and Spacing, Tension and Shear Loads

How to use these charts:

1. The following tables are for reduced end and edge distance and spacing.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the end or edge distance (C_{act}) or spacing (S_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_c or f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple edges or spacing are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension or Shear Load Based on CMU Strength values only.

End Distance Tension (f_c) *

C_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	C_{cr}	17	20	27
	C_{min}	4	4	4
	f_{cmin}	1.00	0.84	0.54**
4		1.00	0.84	0.54
8		1.00	0.88	0.62
12		1.00	0.92	0.70
16		1.00	0.96	0.78
17		1.00	0.97	0.80
20			1.00	0.86
24				0.94
27				1.00

See Notes Below

Edge Distance Tension (f_c) *

C_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	C_{cr}	17	20	27
	C_{min}	4	4	4
	f_{cmin}	1.00	0.84	0.54**
4		1.00	0.84	0.54
8		1.00	0.88	0.62
12		1.00	0.92	0.70
16		1.00	0.96	0.78
17		1.00	0.97	0.80
20			1.00	0.86
24				0.94
27				1.00

See Notes Below

*See page 10 for an explanation of the load table icons

**The allowable tension load reduction factor is permitted to equal 1.0 provided both of the following conditions are met: (a) The anchor is installed with a minimum end distance, C_{min}, between 4 inches and 8 inches; and (b) a masonry return wall of identical construction is on the opposite side (such as two masonry walls intersecting at a building corner).

End and Edge Distance Shear (f_c) Shear Load Perpendicular to End or Edge *

C_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	C_{cr}	17	20	27
	C_{min}	4	4	4
	f_{cmin}	0.43	0.25	0.25
4		0.43	0.25	0.25
8		0.61	0.44	0.38
12		0.78	0.63	0.51
16		0.96	0.81	0.64
17		1.00	0.86	0.67
20			1.00	0.77
24				0.90
27				1.00

End and Edge Distance Shear (f_c) Shear Load Parallel to End or Edge *

C_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	C_{cr}	17	20	27
	C_{min}	4	4	4
	f_{cmin}	0.95	0.51	0.45
4		0.95	0.51	0.45
8		0.97	0.63	0.55
12		0.98	0.76	0.64
16		1.00	0.88	0.74
17		1.00	0.91	0.76
20			1.00	0.83
24				0.93
27				1.00

1. E = Embedment depth (inches).
2. C_{act} = actual end or edge distance at which anchor is installed (inches).
3. C_{cr} = critical end or edge distance for 100% load (inches).
4. C_{min} = minimum end or edge distance for reduced load (inches).
5. f_c = adjustment factor for allowable load at actual end or edge distance.
6. f_{ccr} = adjustment factor for allowable load at critical end or edge distance. f_{ccr} is always = 1.00.
7. f_{cmin} = adjustment factor for allowable load at minimum end or edge distance.
8. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

Spacing Tension (f_s) *

S_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	S_{cr}	17	20	27
	S_{min}	8	8	8
	f_{smin}	0.89	0.81	0.59
8		0.89	0.81	0.59
12		0.94	0.87	0.68
16		0.99	0.94	0.76
17		1.00	0.95	0.78
20			1.00	0.85
24				0.94
27				1.00

Spacing Shear (f_s) *

S_{act} (in.)	Dia.	½	⅝	¾
	E	4¼	5	6¾
	S_{cr}	17	20	27
	S_{min}	8	8	8
	f_{smin}	1.00	1.00	1.00
8		1.00 for all spacing ≥ 8 in.		
12				
16				
17				
20				
24				
27				

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. f_s = adjustment factor for allowable load at actual spacing distance.
6. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
7. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
8. $f_s = f_{smin} + [(1 - f_{smin}) (S_{act} - S_{min}) / (S_{cr} - S_{min})]$.