Wedge-All® Wedge Anchor

The Wedge-All wedge-style expansion anchor is intended for use in solid concrete or grout-filled masonry. This anchor is best suited in installations where a building code approval for seismic and cracked/uncracked concrete is not required. Threaded studs are set by tightening the nut to the specified torque.

Features

- One-piece, wrap-around clip ensures uniform holding capacity
- Threaded end is chamfered for ease of starting nut
- Available in a wide range of diameters and lengths

Codes: FM 3017082 and 3131136;
UL File Ex3605;
Multiple DOT listings;
Meets the requirements of Federal Specification A-A-1923A, Type 4

Material: Carbon steel or stainless steel (Types 303/304; Type 316)

Coating: Carbon steel anchors are available zinc plated or mechanically galvanized

Installation

Do not use an impact wrench to set or tighten anchors.

Caution: Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.

1. Drill a hole in base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth, and blow it clean using compressed air. (Overhead installations need not be blown clean.) Alternatively, drill the hole deep enough to accommodate the embedment depth and the dust from drilling.
2. Assemble the anchor with nut and washer so the top of the nut is flush with the top of the anchor. Place the anchor in the fixture, and drive it into the hole until the washer and nut are tight against the fixture.
3. Tighten to the required installation torque.

Wedge-All Anchor

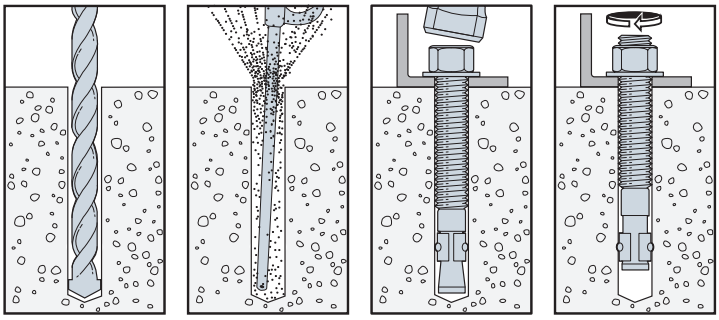
Head Stamp
The head is stamped with the length identification letter.

3/8" diameter anchor data for CIP and CMU is bubbled for convenience

*CIP See Pages 123,125,128,129,131-134

*CMU See Pages 123,125,130,135

Installation Sequence



Wedge-All Anchor Installation Data

Wedge-All Diameter (in.)	¼	⅜	½	⅝	¾	⅞	1	1¼
Drill Bit Size (in.)	¼	⅜	½	⅝	¾	⅞	1	1¼
Min. Fixture Hole (in.)	5⁄16	7⁄16	9⁄16	11⁄16	⅞	1	1⅛	1⅜
Wrench Size (in.)	7⁄16	9⁄16	¾	15⁄16	1⅛	1 5⁄16	1½	1⅞

Length Identification Head Marks on Wedge-All Anchors (corresponds to length of anchor — inches).

Mark	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
From	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	11	12	13	14	15	16	17	18
Up To But Not Including	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	11	12	13	14	15	16	17	18	19

Wedge-All® Wedge Anchor

Wedge-All Anchor Product Data — Carbon Steel: Zinc Plated and Mechanically Galvanized

Size (in.)	Zinc Plated Model No.	Mechanically Galvanized Model No.	Drill Bit Dia. (in.)	Thread Length (in.)	Quantity	
					Box	Carton
¼ x 2¼	—	WA25214MG	¼	1 7/16	100	500
¼ x 3¼	—	WA25314MG		2 7/16	100	500
⅜ x 2¼	WA37214	WA37214MG	⅜	1⅛	50	250
⅜ x 2¾	WA37234	WA37234MG		1⅝	50	250
⅜ x 3	WA37300	WA37300MG		1⅞	50	250
⅜ x 3½	WA37312	WA37312MG		2½	50	250
⅜ x 3¾	WA37334	WA37334MG		2⅝	50	250
⅜ x 5	WA37500	WA37500MG		3⅞	50	200
⅜ x 7	WA37700	WA37700MG		5⅞	50	200
½ x 2¾	WA50234	WA50234MG	½	1 5/16	25	125
½ x 3¾	WA50334	WA50334MG		2 5/16	25	125
½ x 4¼	WA50414	WA50414MG		2 13/16	25	100
½ x 5½	WA50512	WA50512MG		4 1/16	25	100
½ x 7	WA50700	WA50700MG		4 9/16	25	100
½ x 8½	WA50812	WA50812MG		6	25	50
½ x 10	WA50100	WA50100MG		6	25	50
½ x 12	WA50120	WA50120MG		6	25	50
⅝ x 3½	WA62312	WA62312MG	⅝	1⅞	20	80
⅝ x 4½	WA62412	WA62412MG		2⅞	20	80
⅝ x 5	WA62500	WA62500MG		3⅜	20	80
⅝ x 6	WA62600	WA62600MG		4⅜	20	80
⅝ x 7	WA62700	WA62700MG		5⅜	20	80
⅝ x 8½	WA62812	WA62812MG		6	20	40
⅝ x 10	WA62100	WA62100MG		6	10	20
⅝ x 12	WA62120	WA62120MG		6	10	20
¾ x 4¼	WA75414	WA75414MG	¾	2⅜	10	40
¾ x 4¾	WA75434	WA75434MG		2⅞	10	40
¾ x 5½	WA75512	WA75512MG		3⅝	10	40
¾ x 6¼	WA75614	WA75614MG		4⅜	10	40
¾ x 7	WA75700	WA75700MG		5⅛	10	40
¾ x 8½	WA75812	WA75812MG		6	10	20
¾ x 10	WA75100	WA75100MG		6	10	20
¾ x 12	WA75120	WA75120MG		6	5	10
⅞ x 6	WA87600	WA87600MG	⅞	2⅛	5	20
⅞ x 8	WA87800	WA87800MG		2⅛	5	10
⅞ x 10	WA87100	WA87100MG		2⅛	5	10
⅞ x 12	WA87120	WA87120MG		2⅛	5	10
1 x 6	WA16000	WA16000MG	1	2¼	5	20
1 x 9	WA19000	WA19000MG		2¼	5	10
1 x 12	WA11200	WA11200MG		2¼	5	10
1¼ x 9	WA12590	—	1¼	2¾	5	10
1¼ x 12	WA12512	—		2¾	5	10

1. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting the minimum length.

Material Specifications

Carbon Steel — Zinc Plated			
Component Materials			
Anchor Body	Nut	Washer	Clip
Material meets minimum 70,000 psi tensile strength	Carbon Steel ASTM A 563, Grade A	Carbon Steel	Carbon Steel

Material Specifications

Carbon Steel — Mechanically Galvanized			
Component Materials			
Anchor Body	Nut	Washer	Clip
Material meets minimum 70,000 psi tensile strength	Carbon Steel ASTM A 563, Grade A	Carbon Steel	Carbon Steel

Wedge-All® Wedge Anchor

Wedge-All Anchor Product Data — Stainless Steel

Size (in.)	Type 303/304 Stainless Model No.[2]	Type 316 Stainless Model No.	Drill Bit Dia. (in.)	Thread Length (in.)	Quantity	
					Box	Carton
⅜ x 2¼	WA372144SS	WA372146SS	⅜	1⅛	50	250
⅜ x 2¾	WA372344SS	WA372346SS		1⅝	50	250
⅜ x 3	WA373004SS	WA373006SS		1⅞	50	250
⅜ x 3½	WA373124SS	WA373126SS		2½	50	250
⅜ x 3¾	WA373344SS	WA373346SS		2⅝	50	250
⅜ x 5	WA375004SS	WA375006SS		3⅞	50	200
⅜ x 7	WA377004SS	WA377006SS		5⅞	50	200
½ x 2¾	WA502344SS	WA502346SS	½	1⁹⁄₁₆	25	125
½ x 3¾	WA503344SS	WA503346SS		2⁵⁄₁₆	25	125
½ x 4¼	WA504144SS	WA504146SS		2¹³⁄₁₆	25	100
½ x 5½	WA505124SS	WA505126SS		4¹⁄₁₆	25	100
½ x 7	WA507004SS	WA507006SS		5⁹⁄₁₆	25	100
½ x 8½	WA508124SS	WA508126SS		2	25	50
½ x 10	WA50100SS	—		2	25	50
½ x 12	WA50120SS	—		2	25	50
⅝ x 3½	WA623124SS	WA623126SS	⅝	1⅞	20	80
⅝ x 4½	WA624124SS	WA624126SS		2⅞	20	80
⅝ x 5	WA625004SS	WA625006SS		3⅜	20	80
⅝ x 6	WA626004SS	WA626006SS		4⅜	20	80
⅝ x 7	WA627004SS	WA627006SS		5⅜	20	80
⅝ x 8½	WA628124SS	WA628126SS		2	20	40
⅝ x 10	WA62100SS	WA621003SS		2	10	20
⅝ x 12	WA62120SS	WA621203SS		2	10	20
¾ x 4¼	WA754144SS	WA754146SS	¾	2⅜	10	40
¾ x 4¾	WA754344SS	WA754346SS		2⅞	10	40
¾ x 5½	WA755124SS	WA755126SS		3⅝	10	40
¾ x 6¼	WA756144SS	WA756146SS		4⅜	10	40
¾ x 7	WA757004SS	WA757006SS		5⅛	10	40
¾ x 8½	WA758124SS	WA758126SS		2¼	10	20
¾ x 10	WA75100SS	WA751003SS		2¼	10	20
¾ x 12	WA75120SS	—		2¼	5	10
⅞ x 6	WA87600SS	—	⅞	2⅛	5	20
⅞ x 8	WA87800SS	WA878003SS		2⅛	5	10
⅞ x 10	WA87100SS	—		2⅛	5	10
⅞ x 12	WA87120SS	—		2⅛	5	10
1 x 6	WA16000SS	—	1	2¼	5	20
1 x 9	WA19000SS	WA190003SS		2¼	5	10
1 x 12	WA11200SS	WA112003SS		2¼	5	10

1. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting a length.
2. Anchors with the "SS" suffix in the model number are manufactured from Type 303 stainless steel; the remaining anchors (with the "4SS" suffix) are manufactured from Type 304 stainless steel. Types 303 and 304 stainless steel perform equally well in certain corrosive environments.

Material Specifications

Type 303/304 Stainless Steel[1]			
Component Materials			
Anchor Body	Nut	Washer	Clip
Type 303 or 304 stainless steel	Type 304 stainless steel	Type 304 stainless steel	Type 304 or 316 stainless steel

1. Types 303 and 304 stainless steels perform equally well in certain corrosive environments. Larger sizes are manufactured from Type 303.

Material Specifications

Type 316 Stainless Steel[1]			
Component Materials			
Anchor Body	Nut	Washer	Clip
Type 316 stainless steel	Type 316 stainless steel	Type 316 stainless steel	Type 316 stainless steel

1. Type 316 stainless steel provides the greatest degree of corrosion resistance offered by Simpson Strong-Tie.

Wedge-All® Design Information — Concrete

Carbon-Steel Wedge-All Allowable Tension Loads in Normal-Weight Concrete

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load							Install. Torque ft.-lb. (N-m)
				$f'_c \geq$ 2,000 psi (13.8 MPa) Concrete			$f'_c \geq$ 3,000 psi (20.7 MPa) Concrete	$f'_c \geq$ 4,000 psi (27.6 MPa) Concrete			
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)	
¼ (6.4)	1⅛ (29)	2½ (64)	1⅝ (41)	680 (3.0)	167 (0.7)	170 (0.8)	205 (0.9)	960 (4.3)	233 (1.0)	240 (1.1)	8 (10.8)
	2¼ (57)	2½ (64)	3⅛ (79)	1,920 (8.5)	286 (1.3)	480 (2.1)	530 (2.4)	2,320 (10.3)	105 (0.5)	580 (2.6)	
⅜ (9.5)	1¾ (44)	3¾ (95)	2⅜ (60)	1,560 (6.9)	261 (1.2)	390 (1.7)	555 (2.5)	2,880 (12.8)	588 (2.6)	720 (3.2)	30 (40.7)
	2⅝ (67)	3¾ (95)	3⅝ (92)	3,360 (14.9)	464 (2.1)	840 (3.7)	1,100 (4.9)	5,440 (24.2)	553 (2.5)	1,360 (6.0)	
	3⅜ (86)	3¾ (95)	4¾ (121)	3,680 (16.4)	585 (2.6)	920 (4.1)	1,140 (5.1)	5,440 (24.2)	318 (1.4)	1,360 (6.0)	
½ (12.7)	2¼ (57)	5 (127)	3⅛ (79)	3,280 (14.6)	871 (3.9)	820 (3.6)	1,070 (4.8)	5,280 (23.5)	849 (3.8)	1,320 (5.9)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	6,040 (26.9)	654 (2.9)	1,510 (6.7)	1,985 (8.8)	9,840 (43.8)	1,303 (5.8)	2,460 (10.9)	
	4½ (114)	5 (127)	6¼ (159)	6,960 (31.0)	839 (3.7)	1,740 (7.7)	2,350 (10.5)	11,840 (52.7)	2,462 (11.0)	2,960 (13.2)	
⅝ (15.9)	2¾ (70)	6¼ (159)	3⅞ (98)	4,520 (20.1)	120 (0.5)	1,130 (5.0)	1,640 (7.3)	8,600 (38.3)	729 (3.2)	2,150 (9.6)	90 (122.0)
	4½ (114)	6¼ (159)	6¼ (159)	8,200 (36.5)	612 (2.7)	2,050 (9.1)	2,990 (13.3)	15,720 (69.9)	1,224 (5.4)	3,930 (17.5)	
	5½ (140)	6¼ (159)	7¾ (197)	8,200 (36.5)	639 (2.8)	2,050 (9.1)	2,990 (13.3)	15,720 (69.9)	1,116 (5.0)	3,930 (17.5)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	6,760 (30.1)	1,452 (6.5)	1,690 (7.5)	2,090 (9.3)	9,960 (44.3)	1,324 (5.9)	2,490 (11.1)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	10,040 (44.7)	544 (2.4)	2,510 (11.2)	3,225 (14.3)	15,760 (70.1)	1,550 (6.9)	3,940 (17.5)	
	6¾ (171)	7½ (191)	9½ (241)	10,040 (44.7)	1,588 (7.1)	2,510 (11.2)	3,380 (15.0)	17,000 (75.6)	1,668 (7.4)	4,250 (18.9)	
⅞ (22.2)	3⅞ (98)	8¾ (222)	5⅜ (137)	7,480 (33.3)	821 (3.7)	1,870 (8.3)	2,275 (10.1)	10,720 (47.7)	1,253 (5.6)	2,680 (11.9)	200 (271.2)
	7⅞ (200)	8¾ (222)	11 (279)	17,040 (75.8)	1,566 (7.0)	4,260 (18.9)	4,670 (20.8)	20,320 (90.4)	2,401 (10.7)	5,080 (22.6)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	11,550 (51.4)	1,830 (8.1)	2,888 (12.8)	2,891 (12.9)	11,760 (52.3)	1,407 (6.3)	2,940 (13.1)	225 (305.1)
	9 (229)	10 (254)	12⅝ (321)	15,570 (69.3)	2,337 (10.4)	3,893 (17.3)	4,766 (21.2)	22,560 (100.4)	1,209 (5.4)	5,640 (25.1)	
1¼ (31.8)	5⅝ (143)	12½ (318)	7⅞ (200)	11,370 (50.6)	1,010 (4.5)	2,843 (12.6)	3,743 (16.6)	18,570 (82.6)	469 (2.1)	4,643 (20.7)	400 (542.3)
	9½ (241)	12½ (318)	13¼ (337)	15,120 (67.3)	2,438 (10.8)	3,780 (16.8)	6,476 (28.8)	36,690 (163.2)	1,270 (5.6)	9,173 (40.8)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance and spacing on pp. 131 and 133.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. The minimum concrete thickness is 1½ times the embedment depth.

** See p. 12 for an explanation of the load table icons.*

Wedge-All® Design Information — Concrete

Carbon-Steel Wedge-All Allowable Shear Loads in Normal-Weight Concrete

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Shear Load					Install. Torque ft.-lb. (N-m)
				$f'_c \geq 2{,}000$ psi (13.8 MPa) Concrete			$f'_c \geq 3{,}000$ psi (20.7 MPa) Concrete	$f'_c \geq 4{,}000$ psi (27.6 MPa) Concrete	
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	
¼ (6.4)	1⅛ (29)	2½ (64)	1⅝ (41)	920 (4.1)	47 (0.2)	230 (1.0)	230 (1.0)	230 (1.0)	8 (10.8)
	2¼ (57)	2½ (64)	3⅛ (79)	—	—	230 (1.0)	230 (1.0)	230 (1.0)	
⅜ (9.5)	1¾ (44)	3¾ (95)	2⅜ (60)	2,280 (10.1)	96 (0.4)	570 (2.5)	570 (2.5)	570 (2.5)	30 (40.7)
	2⅝ (67)	3¾ (95)	3⅝ (92)	4,220 (18.8)	384 (1.7)	1,055 (4.7)	1,055 (4.7)	1,055 (4.7)	
	3⅜ (86)	3¾ (95)	4¾ (121)	—	—	1,055 (4.7)	1,055 (4.7)	1,055 (4.7)	
½ (12.7)	2¼ (57)	5 (127)	3⅛ (79)	6,560 (29.2)	850 (3.8)	1,345 (6.0)	1,485 (6.6)	1,625 (7.2)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	8,160 (36.3)	880 (3.9)	1,675 (7.5)	1,850 (8.2)	2,020 (9.0)	
	4½ (114)	5 (127)	6¼ (159)	—	—	1,675 (7.5)	1,850 (8.2)	2,020 (9.0)	
⅝ (15.9)	2¾ (70)	6¼ (159)	3⅞ (98)	8,720 (38.8)	1,699 (7.6)	1,620 (7.2)	1,900 (8.5)	2,180 (9.7)	90 (122.0)
	4½ (114)	6¼ (159)	6¼ (159)	12,570 (55.9)	396 (1.8)	2,330 (10.4)	2,740 (12.2)	3,145 (14.0)	
	5½ (140)	6¼ (159)	7¾ (197)	—	—	2,330 (10.4)	2,740 (12.2)	3,145 (14.0)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	11,360 (50.5)	792 (3.5)	2,840 (12.6)	2,840 (12.6)	2,840 (12.6)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	18,430 (82.0)	1,921 (8.5)	4,610 (20.5)	4,610 (20.5)	4,610 (20.5)	
	6¾ (171)	7½ (191)	9½ (241)	—	—	4,610 (20.5)	4,610 (20.5)	4,610 (20.5)	
⅞ (22.2)	3⅞ (98)	8¾ (222)	5⅜ (137)	13,760 (61.2)	2,059 (9.2)	3,440 (15.3)	3,440 (15.3)	3,440 (15.3)	200 (271.2)
	7⅞ (200)	8¾ (222)	11 (279)	22,300 (99.2)	477 (2.1)	5,575 (24.8)	5,575 (24.8)	5,575 (24.8)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	22,519 (100.2)	1,156 (5.1)	5,730 (25.5)	5,730 (25.5)	5,730 (25.5)	300 (406.7)
	9 (229)	10 (254)	12⅝ (321)	25,380 (112.9)	729 (3.2)	6,345 (28.2)	6,345 (28.2)	6,345 (28.2)	
1¼ (31.8)	5⅝ (143)	12½ (318)	7⅞ (200)	29,320 (130.4)	2,099 (9.3)	7,330 (32.6)	7,330 (32.6)	7,330 (32.6)	400 (542.3)
	9½ (241)	12½ (318)	13¼ (337)	—	—	7,330 (32.6)	7,330 (32.6)	7,330 (32.6)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for spacing and edge distance on pp. 132, 134 and 135.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. The minimum concrete thickness is 1½ times the embedment depth.

** See p. 12 for an explanation of the load table icons.*

Wedge-All® Design Information — Concrete

Stainless-Steel Wedge-All Allowable Tension Loads in Normal-Weight Concrete

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Allowable Tension Load lb. (kN)			Install. Torque ft.-lb. (N-m)
				$f'_c \geq$ 2,000 psi (13.8 MPa) Concrete	$f'_c \geq$ 3,000 psi (20.7 MPa) Concrete	$f'_c \geq$ 4,000 psi (27.6 MPa) Concrete	
¼ (6.4)	1⅛ (29)	2½ (64)	1⅝ (41)	155 (0.7)	185 (0.8)	215 (1.0)	8 (10.8)
	2¼ (57)	2½ (64)	3⅛ (79)	430 (1.9)	475 (2.1)	520 (2.3)	
⅜ (9.5)	1¾ (44)	3¾ (95)	2⅜ (60)	350 (1.6)	500 (2.2)	650 (2.9)	30 (40.7)
	2⅝ (67)	3¾ (95)	3⅝ (92)	755 (3.4)	990 (4.4)	1,225 (5.4)	
	3⅜ (86)	3¾ (95)	4¾ (121)	830 (3.7)	1,025 (4.6)	1,225 (5.4)	
½ (12.7)	2¼ (57)	5 (127)	3⅛ (79)	740 (3.3)	965 (4.3)	1,190 (5.3)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	1,360 (6.0)	1,785 (7.9)	2,215 (9.9)	
	4½ (114)	5 (127)	6¼ (159)	1,565 (7.0)	2,115 (9.4)	2,665 (11.9)	
⅝ (15.9)	2¾ (70)	6¼ (159)	3⅞ (98)	1,015 (4.5)	1,475 (6.6)	1,935 (8.6)	90 (122.0)
	4½ (114)	6¼ (159)	6¼ (159)	1,845 (8.2)	2,690 (12.0)	3,535 (15.7)	
	5½ (140)	6¼ (159)	7¾ (197)	1,845 (8.2)	2,690 (12.0)	3,535 (15.7)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	1,520 (6.8)	1,880 (8.4)	2,240 (10.0)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	2,260 (10.1)	2,905 (12.9)	3,545 (15.8)	
	6¾ (171)	7½ (191)	9½ (241)	2,260 (10.1)	3,040 (13.5)	3,825 (17.0)	
⅞ (22.2)	3⅞ (98)	8¾ (222)	5⅜ (137)	1,685 (7.5)	2,050 (9.1)	2,410 (10.7)	200 (271.2)
	7⅞ (200)	8¾ (222)	11 (279)	3,835 (17.1)	4,205 (18.7)	4,570 (20.3)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	2,599 (11.6)	2,621 (11.7)	2,648 (11.8)	225 (305.1)
	9 (229)	10 (254)	12⅝ (321)	3,503 (15.6)	4,290 (19.1)	5,078 (22.6)	
1¼ (31.8)	5⅝ (143)	12½ (318)	7⅞ (200)	2,558 (11.4)	3,368 (15.0)	4,178 (18.6)	400 (542.3)
	9½ (241)	12½ (318)	13¼ (337)	3,401 (15.1)	5,828 (25.9)	8,254 (36.7)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance and spacing on pp. 131 and 133.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. The minimum concrete thickness is 1½ times the embedment depth.

** See p. 12 for an explanation of the load table icons.*

Wedge-All® Design Information — Concrete

Stainless-Steel Wedge-All Allowable Shear Loads in Normal-Weight Concrete

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Allowable Shear Load lb. (kN)			Install. Torque ft.-lb. (N-m)
				$f'_c \geq 2{,}000$ psi (13.8 MPa) Concrete	$f'_c \geq 3{,}000$ psi (20.7 MPa) Concrete	$f'_c \geq 4{,}000$ psi (27.6 MPa) Concrete	
¼ (6.4)	1⅛ (29)	2½ (64)	1⅝ (41)	265 (1.2)	265 (1.2)	265 (1.2)	8 (10.8)
	2¼ (57)	2½ (64)	3⅛ (79)	265 (1.2)	265 (1.2)	265 (1.2)	
⅜ (9.5)	1¾ (44)	3¾ (95)	2⅜ (60)	655 (2.9)	655 (2.9)	655 (2.9)	30 (40.7)
	2⅝ (67)	3¾ (95)	3⅝ (92)	1,215 (5.4)	1,215 (5.4)	1,215 (5.4)	
	3⅜ (86)	3¾ (95)	4¾ (121)	1,215 (5.4)	1,215 (5.4)	1,215 (5.4)	
½ (12.7)	2¼ (57)	5 (127)	3⅛ (79)	1,545 (6.9)	1,710 (7.6)	1,870 (8.3)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	1,925 (8.6)	2,130 (9.5)	2,325 (10.3)	
	4½ (114)	5 (127)	6¼ (159)	1,925 (8.6)	2,130 (9.5)	2,325 (10.3)	
⅝ (15.9)	2¾ (70)	6¼ (159)	3⅞ (98)	1,865 (8.3)	2,185 (9.7)	2,505 (11.1)	90 (122.0)
	4½ (114)	6¼ (159)	6¼ (159)	2,680 (11.9)	3,150 (14.0)	3,615 (16.1)	
	5½ (140)	6¼ (159)	7¾ (197)	2,680 (11.9)	3,150 (14.0)	3,615 (16.1)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	3,265 (14.5)	3,265 (14.5)	3,265 (14.5)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	5,300 (23.6)	5,300 (23.6)	5,300 (23.6)	
	6¾ (171)	7½ (191)	9½ (241)	5,300 (23.6)	5,300 (23.6)	5,300 (23.6)	
⅞ (22.2)	3⅞ (98)	8¾ (222)	5⅜ (137)	3,955 (17.6)	3,955 (17.6)	3,955 (17.6)	200 (271.2)
	7⅞ (200)	8¾ (222)	11 (279)	6,410 (28.5)	6,410 (28.5)	6,410 (28.5)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	6,590 (29.3)	6,590 (29.3)	6,590 (29.3)	300 (406.7)
	9 (229)	10 (254)	12⅝ (321)	7,295 (32.4)	7,295 (32.4)	7,295 (32.4)	
1¼ (31.8)	5⅝ (143)	12½ (318)	7⅞ (200)	8,430 (37.5)	8,430 (37.5)	8,430 (37.5)	400 (542.3)
	9½ (241)	12½ (318)	13¼ (337)	8,430 (37.5)	8,430 (37.5)	8,430 (37.5)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for spacing and edge distance on pp. 131–132 and 134.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. The minimum concrete thickness is 1½ times the embedment depth.

** See p. 12 for an explanation of the load table icons.*

Carbon-Steel Wedge-All Allowable Tension Loads in Sand-Lightweight Concrete over Steel Deck

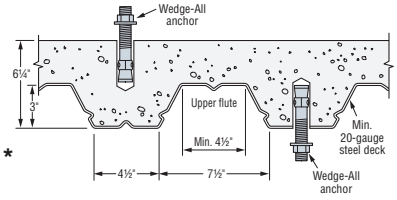
Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load (Install in Concrete) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Tension Load (Install Through Steel Deck) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Install. Torque ft.-lb. (N-m)
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
¼ (6.4)	1½ (38)	3⅜ (86)	2¾ (70)	—	—	—	1,440 (6.4)	167 (0.7)	360 (1.6)	—
½ (12.7)	2¼ (57)	6¾ (171)	4⅛ (105)	3,880 (17.3)	228 (1.0)	970 (4.3)	3,860 (17.2)	564 (2.5)	965 (4.3)	60 (81.3)
⅝ (15.9)	2¾ (70)	8⅜ (213)	5 (127)	5,920 (26.3)	239 (1.1)	1,480 (6.6)	5,220 (23.2)	370 (1.6)	1,305 (5.8)	90 (122.0)
¾ (19.1)	3⅜ (>86)	10 (254)	6⅛ (156)	7,140 (31.8)	537 (2.4)	1,785 (7.9)	6,600 (29.4)	903 (4.0)	1,650 (7.3)	150 (203.4)

See footnotes 1–7 below.

Carbon-Steel Wedge-All Allowable Shear Loads in Sand-Lightweight Concrete over Steel Deck

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Shear Load (Install in Concrete) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Shear Load (Install Through Steel Deck) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Install. Torque ft.-lb. (N-m)
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
¼ (6.4)	1½ (38)	3⅜ (86)	2¾ (70)	—	—	—	1,660 (7.4)	627 (2.8)	415 (1.8)	—
½ (12.7)	2¼ (57)	6¾ (171)	4⅛ (105)	5,575 (24.8)	377 (1.7)	1,395 (6.2)	7,260 (32.3)	607 (2.7)	1,815 (8.1)	60 (81.3)
⅝ (15.9)	2¾ (70)	8⅜ (213)	5 (127)	8,900 (39.6)	742 (3.3)	2,225 (9.9)	8,560 (38.1)	114 (0.5)	2,140 (9.5)	90 (122.0)
¾ (19.1)	3⅜ (86)	10 (254)	6⅛ (156)	10,400 (46.3)	495 (2.2)	2,600 (11.6)	11,040 (49.1)	321 (1.4)	2,760 (12.3)	150 (203.4)

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance on p. 135.
3. 100% of the allowable load is permitted at critical spacing. Loads at reduced spacing have not been determined.
4. Drill bit diameter used in base material corresponds to nominal anchor diameter.
5. The minimum concrete thickness is 1½ times the embedment depth.
6. Steel deck must be minimum 20 gauge.
7. Anchors installed in the bottom flute of the steel deck must have a minimum allowable edge distance of 1½" from the inclined edge of the bottom flute.

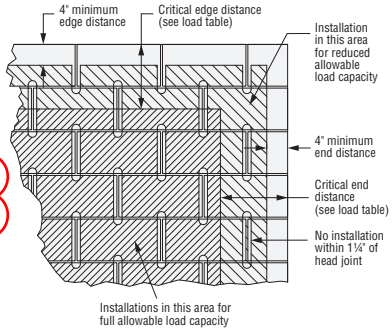


Lightweight Concrete on Steel Deck

Carbon-Steel Wedge-All Allowable Tension and Shear Loads in Grout-Filled CMU

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical End Dist. in. (mm)	Critical Spacing in. (mm)	8" Grout-Filled CMU Allowable Load Based on CMU Strength Tension Load			Shear Load			Install. Torque ft.-lb. (N-m)
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
Anchor Installed on the Face of the CMU Wall at Least 1¼ inch Away from Head Joint (See Figure)											
⅜ (9.5)	2⅝ (67)	10½ (267)	10½ (267)	10½ (267)	1,700 (7.6)	129 (0.6)	340 (1.5)	3,360 (14.9)	223 (1.0)	670 (3.0)	30 (40.7)
½ (12.7)	3½ (89)	14 (356)	14 (356)	14 (356)	2,120 (9.4)	129 (0.6)	425 (1.9)	5,360 (23.8)	617 (2.7)	1,070 (4.8)	35 (47.4)
⅝ (15.9)	4⅜ (111)	17½ (445)	17½ (445)	17½ (445)	3,120 (13.9)	342 (1.5)	625 (2.8)	8,180 (36.4)	513 (2.3)	1,635 (7.3)	55 (74.5)
¾ (19.1)	5¼ (133)	21 (533)	21 (533)	21 (533)	4,320 (19.2)	248 (1.1)	865 (3.8)	10,160 (45.2)	801 (3.6)	2,030 (9.0)	120 (162.6)

1. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC.
2. Listed loads may be applied to installations on the face of the CMU wall at least 1¼" away from headjoints.
3. Values for 8"-wide concrete masonry units (CMU) with a minimum specified compressive strength of masonry, f'_m, at 28 days is 1,500 psi.
4. Embedment depth is measured from the outside face of the concrete masonry unit.
5. Drill bit diameter used in base material corresponds to nominal anchor diameter.
6. Tension and shear loads for the Wedge-All anchor may be combined using the parabolic interaction equation (n = ⅔).
7. Refer to allowable load-adjustment factors for edge distance on p. 135.



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

** See p. 12 for an explanation of the load table icons.*

Allowable Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All Anchors in Normal-Weight Concrete: Edge Distance, Tension and Shear Loads

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 edge distance (c_{act}) at which the anchor is to be installed.
4. The load adjustment factor (f_c) is the intersection of the row and column.
5. Multiply the allowable load by the applicable load adjustment factor.
6. Reduction factors for multiple edges are multiplied together.

Edge Distance Tension (f_c)

Edge Dist. c_{act} (in.)	Size	¼	⅜	½	⅝	¾	⅞	1	1¼
	c_{cr}	2½	3¾	5	6¼	7½	8¾	10	12½
	c_{min}	1	1½	2	2½	3	3½	4	5
	f_{cmin}	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
1		0.70							
1½		0.80	0.70						
2		0.90	0.77	0.70					
2½		1.00	0.83	0.75	0.70				
3			0.90	0.80	0.74	0.70			
3½			0.97	0.85	0.78	0.73	0.70		
3¾			1.00	0.88	0.80	0.75	0.71		
4				0.90	0.82	0.77	0.73	0.70	
4½				0.95	0.86	0.80	0.76	0.73	
5				1.00	0.90	0.83	0.79	0.75	0.70
5½					0.94	0.87	0.81	0.78	0.72
6					0.98	0.90	0.84	0.80	0.74
6¼					1.00	0.92	0.86	0.81	0.75
6½						0.93	0.87	0.83	0.76
7						0.97	0.90	0.85	0.78
7½						1.00	0.93	0.88	0.80
8							0.96	0.90	0.82
8½							0.99	0.93	0.84
8¾							1.00	0.94	0.85
10								1.00	0.90
12½									1.00
15									

IBC*

See footnotes below.

Edge Distance Shear (f_c) (Shear Applied Perpendicular to Edge)

Edge Dist. c_{act} (in.)	Size	¼	⅜	½	⅝	¾	⅞	1	1¼
	c_{cr}	2½	3¾	5	6¼	7½	8¾	10	12½
	c_{min}	1	1½	2	2½	3	3½	4	5
	f_{cmin}	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
1		0.30							
1½		0.53	0.30						
2		0.77	0.46	0.30					
2½		1.00	0.61	0.42	0.30				
3			0.77	0.53	0.39	0.30			
3½			0.92	0.65	0.49	0.38	0.30		
3¾			1.00	0.71	0.53	0.42	0.33		
4				0.77	0.58	0.46	0.37	0.30	
4½				0.88	0.67	0.53	0.43	0.36	
5				1.00	0.77	0.61	0.50	0.42	0.30
5½					0.86	0.69	0.57	0.48	0.35
6					0.95	0.77	0.63	0.53	0.39
6¼					1.00	0.81	0.67	0.56	0.42
6½						0.84	0.70	0.59	0.44
7						0.92	0.77	0.65	0.49
7½						1.00	0.83	0.71	0.53
8							0.90	0.77	0.58
8½							0.97	0.83	0.63
8¾							1.00	0.85	0.65
10								1.00	0.77
12½									1.00
15									

IBC*

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

Load-Adjustment Factors for Reduced Spacing:
Critical spacing is listed in the load tables. No adjustment in load is required when the anchors are spaced at critical spacing.
No additional testing has been performed to determine the adjustment factors for spacing dimensions less than those listed in the load tables.

** See p. 12 for an explanation of the load table icons.*

Wedge-All® Design Information — Concrete

Allowable Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All Anchors in Normal-Weight Concrete: Edge Distance and Shear Load Applied Parallel to Edge

How to use these charts:

1. The following tables are for reduced edge distance.
2. Locate the anchor size to be used for a shear load application.
3. Locate the edge distance ($c_{act||}$) at which the anchor is to be installed.
4. The load adjustment factor ($\phi_{c||}$) is the intersection of the row and column.
5. Multiply the allowable load by the applicable load adjustment factor.
6. Reduction factors for multiple edges are multiplied together.

Edge Distance Shear ($f_{c||}$) (Shear Applied Parallel to Edge with End Distance ≥ ED_{min})

Edge Dist. $c_{act||}$ (in.)	Size	¼	⅜	½	⅝	¾	⅞	1	1¼
	E	2¼	3⅜	4½	5½	6¾	7⅞	9	9½
	ED_{min}	9	13½	18	22	27	31½	36	38
	$c_{cr||}$	2½	3¾	5	6¼	7½	8¾	10	12½
	$c_{min||}$	1	1½	2	2½	3	3½	4	5
	$f_{cmin||}$	1.00	0.93	0.70	0.62	0.62	0.62	0.62	0.62
1		1.00							
1½		1.00	0.93						
2		1.00	0.95	0.70					
2½		1.00	0.96	0.75	0.62				
3			0.98	0.80	0.67	0.62			
3½			0.99	0.85	0.72	0.66	0.62		
4			1.00	0.90	0.77	0.70	0.66	0.62	
5				1.00	0.87	0.79	0.73	0.68	0.62
6					0.97	0.87	0.80	0.75	0.67
7					1.00	0.96	0.87	0.81	0.72
8						1.00	0.95	0.87	0.77
9							1.00	0.94	0.82
10								1.00	0.87
11									0.92
12									0.97
13									1.00

1. Table is not applicable to anchors with $ED < ED_{min}$. Factors from this table may not be combined with load-adjustment factors for shear loads applied perpendicular to edge.
2. $c_{act||}$ = actual edge distance (measured perpendicular to direction of shear load) at which anchor is installed (inches).
3. $c_{cr||}$ = critical edge distance (measured perpendicular to direction of shear load) for 100% load (inches).
4. $c_{min||}$ = minimum edge distance (measured perpendicular to direction of shear load) for reduced load (inches).
5. *ED* = actual end distance (measured parallel to direction of shear load) at which anchor is installed (inches).
6. ED_{min} = minimum edge distance (measured parallel to direction of shear load).
7. $f_{c||}$ = adjustment factor for allowable load at actual edge distance.
8. $f_{ccr||}$ = adjustment factor for allowable load at critical edge distance. $f_{ccr||}$ is always = 1.00.
9. $f_{cmin||}$ = adjustment factor for allowable load at minimum edge distance.
10. $f_{c||} = f_{cmin||} + [(1 - f_{cmin||}) (c_{act||} - c_{min||}) / (c_{cr||} - c_{min||})]$.

** See p. 12 for an explanation of the load table icons.*

Wedge-All® Design Information — Concrete

Allowable Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All Anchors in Normal-Weight Concrete: Spacing, Tension Loads

How to use these charts:

1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for a tension load application.
3. Locate the anchor embedment (E) used for a tension load application.
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.

Spacing Tension (f_s)

s_{act} (in.)	Dia.	¼		⅜			½			⅝		
	E	1⅛	2¼	1¾	2⅝	3⅜	2¼	3⅜	4½	2¾	4½	5½
	s_{cr}	1⅝	3⅛	2⅜	3⅝	4¾	3⅛	4¾	6¼	3⅞	6¼	7¾
	s_{min}	⅝	1⅛	⅞	1⅜	1¾	1⅛	1¾	2¼	1⅜	2¼	2¾
	f_{smin}	**0.43**	**0.70**	**0.43**	**0.43**	**0.70**	**0.43**	**0.43**	**0.70**	**0.43**	**0.43**	**0.70**
¾		0.50										
1		0.64		0.48								
1¼		0.79	0.72	0.57			0.47					
1½		0.93	0.76	0.67	0.46		0.54			0.46		
1¾		1.00	0.79	0.76	0.53	0.70	0.61	0.43		0.52		
2			0.83	0.86	0.59	0.73	0.68	0.48		0.57		
2¼			0.87	0.95	0.65	0.75	0.75	0.53	0.70	0.63	0.43	
2½			0.91	1.00	0.72	0.78	0.82	0.57	0.72	0.69	0.47	
2¾			0.94		0.78	0.80	0.89	0.62	0.74	0.74	0.50	0.70
3			0.98		0.84	0.83	0.96	0.67	0.76	0.80	0.54	0.72
3½			1.00		0.97	0.88	1.00	0.76	0.79	0.91	0.61	0.75
4					1.00	0.93		0.86	0.83	1.00	0.68	0.78
4½						0.98		0.95	0.87		0.75	0.81
5						1.00		1.00	0.91		0.82	0.84
6									0.98		0.96	0.90
7									1.00		1.00	0.96
8												1.00

See footnotes below.

Spacing Tension (f_s)

s_{act} (in.)	Dia.	¾			⅞		1		1¼	
	E	3⅜	5	6¾	3⅞	7⅞	4½	9	5⅝	9½
	s_{cr}	4¾	7	9½	5⅜	11	6¼	12⅝	7⅞	13¼
	s_{min}	1¾	2½	3⅜	2	4	2¼	4½	2⅞	4¾
	f_{smin}	**0.43**	**0.43**	**0.70**	**0.43**	**0.70**	**0.43**	**0.70**	**0.43**	**0.70**
2		0.48			0.43					
3		0.67	0.49		0.60		0.54		0.46	
4		0.86	0.62	0.73	0.77	0.70	0.68		0.57	
5		1.00	0.75	0.78	0.94	0.74	0.82	0.72	0.68	0.71
6			0.87	0.83	1.00	0.79	0.96	0.76	0.79	0.74
7			1.00	0.88		0.83	1.00	0.79	0.90	0.78
8				0.93		0.87		0.83	1.00	0.81
9				0.98		0.91		0.87		0.85
10				1.00		0.96		0.90		0.89
11						1.00		0.94		0.92
12								0.98		0.96
13								1.00		0.99
14										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. $f_s = f_{smin} + [(1 - f_{smin})\ (s_{act} - s_{min})\ /\ (s_{cr} - s_{min})]$.

** See p. 12 for an explanation of the load table icons.*

Allowable Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All Anchors in Normal-Weight Concrete: Spacing, Shear Loads

How to use these charts:

1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for a shear load application.
3. Locate the anchor embedment (E) used for a shear load application.
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.

Spacing Shear (f_s)

s_{act} (in.)	Dia.	¼		⅜			½			⅝		
	E	1⅛	2¼	1¾	2⅝	3⅜	2¼	3⅜	4½	2¾	4½	5½
	s_{cr}	1⅝	3⅛	2⅜	3⅝	4¾	3⅛	4¾	6¼	3⅞	6¼	7¾
	s_{min}	⅝	1⅛	⅞	1⅜	1¾	1⅛	1¾	2¼	1⅜	2¼	2¾
	f_{smin}	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**
¾		0.82										
1		0.87		0.81								
1¼		0.92	0.80	0.84			0.80					
1½		0.97	0.83	0.88	0.80		0.83			0.80		
1¾		1.00	0.86	0.91	0.83	0.79	0.86	0.79		0.82		
2			0.88	0.95	0.85	0.81	0.88	0.81		0.84		
2¼			0.91	0.98	0.87	0.83	0.91	0.83	0.79	0.86	0.79	
2½			0.93	1.00	0.90	0.84	0.93	0.84	0.80	0.88	0.80	
2¾			0.96		0.92	0.86	0.96	0.86	0.82	0.91	0.82	0.79
3			0.99		0.94	0.88	0.99	0.88	0.83	0.93	0.83	0.80
3½			1.00		0.99	0.91	1.00	0.91	0.86	0.97	0.86	0.82
4					1.00	0.95		0.95	0.88	1.00	0.88	0.84
4½						0.98		0.98	0.91		0.91	0.86
5						1.00		1.00	0.93		0.93	0.88
6									0.99		0.99	0.93
7									1.00		1.00	0.97
8												1.00

See notes below.

Spacing Shear (f_s)

s_{act} (in.)	Dia.	¾			⅞		1		1¼	
	E	3⅜	5	6¾	3⅞	7⅞	4½	9	5⅝	9½
	s_{cr}	4¾	7	9½	5⅜	11	6¼	12⅝	7⅞	13¼
	s_{min}	1¾	2½	3⅜	2	4	2¼	4½	2⅞	4¾
	f_{smin}	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**	**0.79**
2		0.81			0.79					
3		0.88	0.81		0.85		0.83		0.80	
4		0.95	0.86	0.81	0.91	0.79	0.88		0.84	
5		1.00	0.91	0.85	0.98	0.82	0.93	0.80	0.88	0.80
6			0.95	0.88	1.00	0.85	0.99	0.83	0.92	0.82
7			1.00	0.91		0.88	1.00	0.85	0.96	0.85
8				0.95		0.91		0.88	1.00	0.87
9				0.98		0.94		0.91		0.90
10				1.00		0.97		0.93		0.92
11						1.00		0.96		0.94
12								0.98		0.97
13								1.00		0.99
14										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. $f_s = f_{smin} + [(1 - f_{smin}) (s_{act} - s_{min}) / (s_{cr} - s_{min})]$.

** See p. 12 for an explanation of the load table icons.*

Allowable Load-Adjustment Factors for Carbon-Steel Wedge-All Anchors in Sand-Lightweight Concrete: Edge Distance, Tension and Shear Loads

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 edge distance (c_{act}) at which the anchor is to be installed.
4. The load adjustment factor (f_c) is the intersection of the row and column.
5. Multiply the allowable load by the applicable load adjustment factor.
6. Reduction factors for multiple edges are multiplied together.

Edge Distance Tension (f_c)

Edge Dist. c_{act} (in.)	Size	¼	½	⅝	¾
	c_{cr}	3⅜	6¾	8⅜	10
	c_{min}	1⅜	2¾	3⅜	4
	f_{cmin}	**0.70**	**0.70**	**0.70**	**0.70**
1⅜		0.70			
1½		0.72			
2		0.79			
2½		0.87			
2¾		0.91	0.70		
3		0.94	0.72		
3⅜		1.00	0.75	0.70	
3½			0.76	0.71	
4			0.79	0.74	0.70
4½			0.83	0.77	0.73
5			0.87	0.80	0.75
5½			0.91	0.83	0.78
6			0.94	0.86	0.80
6½			0.98	0.89	0.83
6¾			1.00	0.90	0.84
7				0.92	0.85
7½				0.95	0.88
8				0.98	0.90
8⅜				1.00	0.92
8½					0.93
9					0.95
9½					0.98
10					1.00

See footnotes below.

Edge Distance Shear (f_c) (Shear Applied Perpendicular to Edge)

Edge Dist. c_{act} (in.)	Size	¼	½	⅝	¾
	c_{cr}	3⅜	6¾	8⅜	10
	c_{min}	1⅜	2¾	3⅜	4
	f_{cmin}	**0.30**	**0.30**	**0.30**	**0.30**
1⅜		0.30			
1½		0.34			
2		0.52			
2½		0.69			
2¾		0.78	0.30		
3		0.87	0.34		
3⅜		1.00	0.41	0.30	
3½			0.43	0.32	
4			0.52	0.39	0.30
4½			0.61	0.46	0.36
5			0.69	0.53	0.42
5½			0.78	0.60	0.48
6			0.87	0.67	0.53
6½			0.96	0.74	0.59
6¾			1.00	0.77	0.62
7				0.81	0.65
7½				0.88	0.71
8				0.95	0.77
8⅜				1.00	0.81
8½					0.83
9					0.88
9½					0.94
10					1.00

See footnotes below.

Load Adjustment Factors for Carbon-Steel Wedge-All® Anchors in Face-of-Wall Installation in 8" Grout-Filled CMU: Edge Distance, Tension and Shear Loads

Edge Distance Tension (f_c)

Edge Dist. c_{act} (in.)	Size	⅜	½	⅝	¾
	c_{cr}	10½	14	17½	21
	c_{min}	4	4	4	4
	f_{cmin}	**1.00**	**1.00**	**0.80**	**0.80**
4		1.00	1.00	0.80	0.80
6		1.00	1.00	0.83	0.82
8		1.00	1.00	0.86	0.85
10½		1.00	1.00	0.90	0.88
12			1.00	0.92	0.89
14			1.00	0.95	0.92
16				0.98	0.94
17½				1.00	0.96
21					1.00

Edge Distance Shear (f_c)

Edge Dist. c_{act} (in.)	Size	⅜	½	⅝	¾
	c_{cr}	10½	14	17½	21
	c_{min}	4	4	4	4
	f_{cmin}	**0.79**	**0.52**	**0.32**	**0.32**
4		0.79	0.52	0.32	0.32
6		0.85	0.62	0.42	0.40
8		0.92	0.71	0.52	0.48
10½		1.00	0.83	0.65	0.58
12			0.90	0.72	0.64
14			1.00	0.82	0.72
16				0.92	0.80
17½				1.00	0.86
21					1.00

Load-Adjustment Factors for Reduced Spacing:
Critical spacing is listed in the load tables. No adjustment in load is required when the anchors are spaced at critical spacing. No additional testing has been performed to determine the adjustment factors for spacing dimensions less than those listed in the load tables.

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

** See p. 12 for an explanation of the load table icons.*