BUILDING TRUST
CONSTRUIRE LA CONFIANCE

Sika AnchorFix®-3030
Technical Documentation

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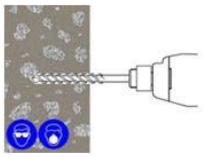
Sika AnchorFix®-3030 385ml

Sika AnchorFix®-3030 585ml

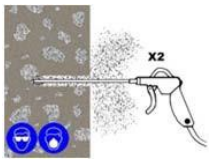
version 03/2024

Solid Substrate Installation Method

1. Using the SDS Hammer Drill in rotary hammer mode for drilling, with a carbide tipped drill bit of the appropriate size, drill the hole to the specified hole diameter and depth.

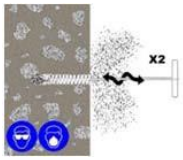


2. Select the correct Air Lance, insert to the bottom of the hole and depress the trigger for 2 seconds. The compressed air must be clean – free from water and oil – and at a minimum pressure of 90 psi (6 bar).



Perform the blowing operation twice.

3. Select the correct size Hole Cleaning Brush. Ensure that the brush is in good condition and the correct diameter. Insert the brush to the bottom of the hole, using a brush extension if needed to reach the bottom of the hole and withdraw with a twisting motion. *There should be positive interaction between the steel bristles of the brush and the sides of the drilled hole*.



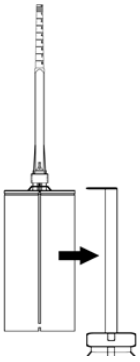
Perform the brushing operation twice.

4. Repeat 2 (blowing operation) twice.

5. Repeat 3 (brushing operation) twice.

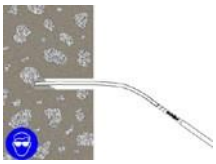
6. Repeat 2 (blowing operation) twice.

7. Select the appropriate static mixer nozzle, checking that the mixing elements are present and correct **(do not modify the mixer)**. Attach mixer nozzle to the cartridge. Check the Dispensing Tool is in good working order. Place the cartridge into the dispensing tool.

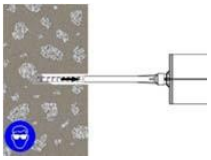


8. Extrude some resin to waste until an even-coloured mixture is extruded, the cartridge is now ready for use.

9. Attach an extension tube with resin stopper (required for overhead and horizontal installation) to the end of the mixing nozzle with a push fit. (The extension tubes may be pushed into the resin stoppers and are held in place with a coarse internal thread).



10. Insert the mixing nozzle to the bottom of the hole. Extrude the resin and slowly withdraw the nozzle from the hole. **Ensure no air voids are created** as the nozzle is withdrawn. Inject resin until the hole is approximately ¾ full and remove the nozzle from the hole.

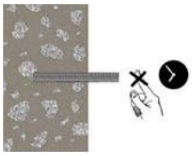


11. Select the steel anchor element ensuring it is free from oil or other contaminants, and mark with the required embedment depth. Insert the steel element into the hole using a back and forth twisting

motion to ensure complete cover, until it reaches the bottom of the hole. Excess resin will be expelled from the hole evenly around the steel element and there shall be no gaps between the anchor element and the wall of the drilled hole.

12. Clean any excess resin from around the mouth of the hole.

13. Do not disturb the anchor until at least the minimum cure time has elapsed. Refer to the Gel and Cure Times



to determine the appropriate cure time.

14. Position the fixture and tighten the anchor to the appropriate installation torque.

Do not over-torque the anchor as this could adversely affect its performance.

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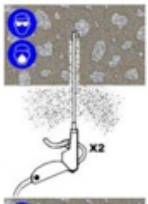
Overhead Substrate Installation Method

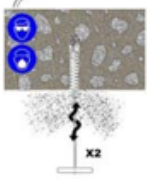
1. Using the SDS Hammer Drill in rotary hammer mode for drilling, with a carbide tipped drill bit of the appropriate size, drill the hole to the specified hole diameter and depth.

2. Select the correct Air Lance, insert to the bottom of the hole and depress the trigger for 2 seconds. The compressed air must be clean – free from water and oil – and at a minimum pressure of 90 psi (6 bar).



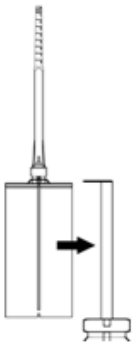
Perform the blowing operation twice.

3. Select the correct size Hole Cleaning Brush. Ensure that the brush is in good condition and the correct diameter. Insert the brush to the bottom of the hole, using a brush extension if needed to reach the bottom of the hole, and withdraw with a twisting motion. *There should be positive interaction between the steel bristles of the brush and the sides of the drilled hole.*



Perform the brushing operation twice.

4. Repeat 2 (blowing operation) twice.
5. Repeat 3 (brushing operation) twice.
6. Repeat 2 (blowing operation) twice.
7. Select the appropriate static mixer nozzle checking that the mixing elements are present and correct **(do not modify the mixer)**. Attach mixer nozzle to the cartridge. Check the Dispensing Tool is in good working order. Place the cartridge into the dispensing tool.



Extrude some resin to waste until an even-colored mixture is extruded, The cartridge is now ready for use.

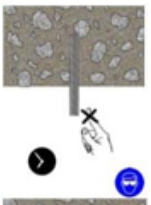
8. Attach an extension tube with resin stopper to the end of the mixing nozzle with a push fit. (The extension tubes may be pushed into the resin stoppers and are held in place with a coarse internal thread).

9. Insert the mixing nozzle to the bottom of the hole. Extrude the resin and slowly withdraw the nozzle from the hole. **Ensure no air voids are created** as the nozzle is withdrawn. Inject resin until the hole is approximately ¾ full and remove the nozzle from the hole.

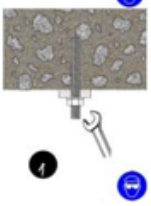
10. Select the steel anchor element ensuring it is free from oil or other contaminants, and mark with the required embedment depth. Insert the steel element into the hole using a back and forth twisting motion to ensure complete cover, until it reaches the bottom of the hole.

Excess resin will be expelled from the hole evenly around the steel element and there shall be no gaps between the anchor element and the wall of the drilled hole.

11. Clean any excess resin from around the mouth of the hole.
12. Do not disturb the anchor until at least the minimum cure time has elapsed. Refer to the Working and Load Timetable to determine the appropriate cure time.



13. Position the fixture and tighten the anchor to the appropriate installation torque.



Do not over-torque the anchor as this could adversely affect its performance.

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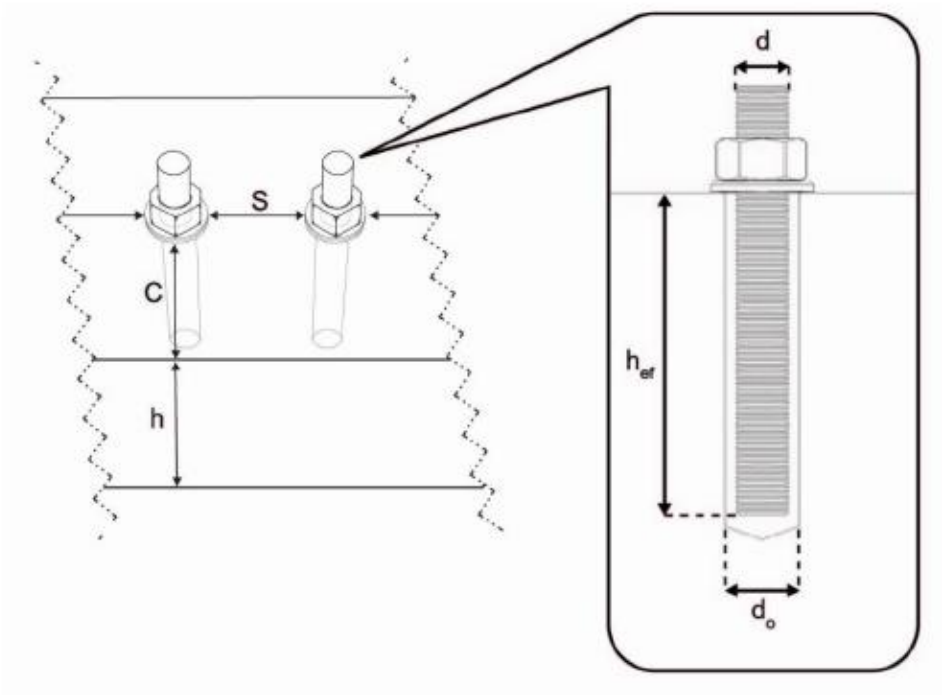

Glossary

d	anchor nominal diameter
d_o	drilled hole diameter
h_{ef}	effective bond length
C	close edge distance
S	anchor spacing
h	concrete member thickness

Installation Parameters

CHARACTERISTIC		SYMBOL	UNITS	NOMINAL ANCHOR ELEMENT DIAMETER							
Fractional Threaded Rod	Size	d_o	inch	$^3/_8$	$^1/_2$	$^5/_8$	$^3/_4$	$^7/_8$	1	-	$1^1/_4$
	Drill Size	d_{hole}	inch	$^1/_2$	$^9/_{16}$	$^3/_4$	$^7/_8$	1	$1^1/_8$	-	$1^3/_8$
Fractional Rebar	Size	d_o	inch	#3	#4	#5	#6	#7	#8	-	#10
	Drill Size	d_{hole}	inch	$^9/_{16}$	$^5/_8$	$^3/_4$	$^7/_8$	1	$1^1/_8$	-	$1^3/_8$
Metric Threaded Rod	Size	d_o	mm	M10	M12	M16	M20	-	M24	M27	M30
	Drill Size	d_{hole}	mm	12	14	18	22	-	26	30	35
Metric Rebar	Size	d_o	mm	M10	M12	M16	M20	-	M25	M28	M32
	Drill Size	d_{hole}	mm	14	16	20	25	-	32	35	40
Maximum Tightening Torque		T_{inst}	ft·lb	15	30	60	100	125	150	175	200
Embedment Depth Range		$h_{ef,min}$	inch	$2^3/_8$	$2^3/_4$	$3^1/_8$	$3^1/_2$	$3^1/_2$	4	$4^1/_2$	5
		$h_{ef,max}$	inch	$7^1/_2$	10	$12^1/_2$	15	$17^1/_2$	20	$21^1/_4$	25
Minimum Concrete Thickness		h_{min}	inch	$1.5 \cdot h_{ef}$							
Critical Edge Distance[1]		c_{ac}	inch	h_{ef} ($\tau_{k,uncr}$ /1,160)0.4 x [3.1 – 0.7(h/h_{ef})							
Minimum Edge Distance		c_{min}	inch	$1^1/_2$	$1^1/_2$	$1^3/_4$	$1^7/_8$	2	2	$2^1/_4$	$2^1/_2$
Minimum Anchor Spacing		s_{min}	inch	$1^1/_2$	$1^1/_2$	$1^3/_4$	$1^7/_8$	2	2	$2^1/_4$	$2^1/_2$

[1]Critical Edge Distance is calculated in accordance with ACI318-14 17.4.5.5 or ACI318-11 D5.5.5 for cases where $h/h_{ef} < 2.4$.

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Concrete Breakout Design Information for Anchor Elements (Strength Design)

Design Information	Symbol	Units	Nominal Anchor Element Diameter
Effectiveness Factor for Cracked Concrete	$k_{c,cr}$	in-lb (SI)	17 (7.1)
Effectiveness Factor for Uncracked Concrete	$k_{c,uncr}$	in-lb (SI)	24 (10)
Strength Reduction Factor for Tension, Concrete Failure Modes, Condition B	ϕ	-	0.65
Strength Reduction Factor for Shear, Concrete Failure Modes, Condition B	ϕ	-	0.65

[1]Condition B applies where supplemental reinforcement is not provided as set forth in ACI 318-14 or ACI 318-11 D.4.3, as applicable. The tabulated value of ϕ applies when the load combinations of Section 1605.2 of the IBC, ACI 318-14 5.2 or ACI 318-11 9.2, as applicable, are used in accordance with ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.5.

Steel Design Information for Metric Threaded Rods

CHARACTERISTIC		SYMBOL	UNITS	NOMINAL ROD DIAMETER, d_o						
Metric Threaded Rod	Nominal Size	d_o	mm	M10	M12	M16	M20	M24	M27	M30
	Stress Area	A_{se}	mm^2	58	84	157	245	353	459	561
	Strength Reduction Factor for Tension Steel Failure	ϕ	-	0.65						
	Strength Reduction Factor for Shear Steel Failure	ϕ	-	0.60						
	Reduction for Seismic Shear	$\alpha_{V,seis}$	-	0.75	0.65	0.65	0.65	0.40	0.40	0.40
	Tension Resistance of Carbon Steel ISO 898-1 Class 5.8	N_{sa}	kN lb	29.0 (6,519)	42.2 (9,476)	78.5 (17,648)	122.5 (27,539)	176.5 (39,679)	229.5 (51,394)	280.5 (63,059)
	Tension Resistance of Carbon Steel ISO 898-1 Class 8.8	N_{sa}	kN lb	46.4 (10,431)	67.4 (15,161)	125.6 (28,236)	196.0 (44,063)	282.4 (63,486)	367.2 (82,550)	448.8 (100,894)
	Tension Resistance of Carbon Steel ISO 898-1 Class 12.9	N_{sa}	kN lb	50.0 (11,240)	72.7 (16,336)	135.3 (30,424)	211.2 (47,477)	304.3 (68,406)	395.7 (88,951)	483.6 (108,714)
	Tension Resistance of Stainless Steel ISO 3506-1 A4-70	N_{sa}	kN lb	40.6 (9,127)	59.0 (13,266)	109.9 (24,707)	171.5 (38,555)	247.1 (55,550)	321.3 (72,231)	392.7 (88,282)
	Tension Resistance of Stainless Steel ISO 3506-1 A4-80	N_{sa}	kN lb	46.4 (10,431)	67.4 (15,161)	125.6 (28,236)	196.0 (44,063)	282.4 (63,486)	367.2 (82,550)	448.8 (100,894)
	Shear Resistance of Carbon Steel ISO 898-1 Class 5.8	V_{sa}	kN lb	17.4 (3,912)	25.3 (5,685)	47.1 (10,589)	73.5 (16,523)	105.9 (23,807)	137.7 (30,956)	168.3 (37,835)
	Shear Resistance of Carbon Steel ISO 898-1 Class 8.8	V_{sa}	kN lb	27.8 (6,259)	40.5 (9,097)	75.4 (16,942)	117.6 (26,438)	169.4 (38,092)	220.3 (49,530)	269.3 (60,537)
	Shear Resistance of Carbon Steel ISO 898-1 Class 12.9	V_{sa}	kN lb	30.0 (6,744)	43.6 (9,802)	81.2 (18,255)	126.7 (28,486)	182.6 (41,044)	237.4 (53,374)	290.1 (65,228)
	Shear Resistance of Stainless Steel ISO 3506-1 A4-70	V_{sa}	kN lb	24.4 (5,476)	35.4 (7,960)	65.9 (14,824)	102.9 (23,133)	148.3 (33,330)	192.8 (43,339)	235.6 (52,969)
	Shear Resistance of Stainless Steel ISO 3506-1 A4-80	V_{sa}	kN lb	27.8 (6,259)	40.5 (9,097)	75.4 (16,942)	117.6 (26,438)	169.4 (38,092)	220.3 (49,530)	269.3 (60,537)

For **SI:** 1 inch = 25.4 mm, 1 $in.^2$ = 645.16 mm^2, 1 lb = 0.004448 kN

[1]Values provided for steel threaded rod are based on minimum specified strengths and calculated in accordance with ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b or ACI 318-11 Eq. D-2 and Eq. D-29, as applicable.

[2]The tabulated value of ϕ applies when the load combinations of Section 1605.2 of the IBC, ACI 318-14 5.3 or ACI 318-11 9.2, as applicable, are used in accordance with ACI 318-14 17.3.3 or ACI 318-11 D.4.3. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4.

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Steel Design Information for Metric Rebar

Metric Reinforcing Bar	Nominal Size	d_o	mm	M10	M12	M16	M20	M25	M28	M32
	Stress Area	A_{se}	mm^2	78.5	113	201	314	491	616	804
	Strength Reduction Factor for Tension Steel Failure	ϕ	-	0.65						
	Strength Reduction Factor for Shear Steel Failure	ϕ	-	0.60						
	Reduction for Seismic Shear	$\alpha_{V,seis}$	-	0.75	0.75	0.75	0.80	0.50	0.50	0.50
	Tension Resistance of DIN 488 BSt 500	N_{sa}	kN lb	43.2 (9,706)	62.2 (13,972)	110.6 (24,853)	172.7 (38,825)	270.1 (60,710)	338.8 (76,165)	442.2 (99,411)
	Shear Resistance of DIN 488 BSt 500	V_{sa}	kN lb	25.9 (5,824)	37.3 (8,383)	66.3 (14,912)	103.6 (23,295)	162.0 (36,426)	203.3 (45,696)	265.3 (59,646)

For **SI:** 1 inch = 25.4 mm, 1 $in.^2$ = 645.16 mm^2, 1 lb = 0.004448 kN

[1]Values provided for steel threaded rod are based on minimum specified strengths and calculated in accordance with ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b or ACI 318-11 Eq. D-2 and Eq. D-29, as applicable.

[2]The tabulated value of ϕ applies when the load combinations of Section 1605.2 of the IBC, ACI 318-14 5.3 or ACI 318-11 9.2, as applicable, are used in accordance with ACI 318-14 17.3.3 or ACI 318-11 D.4.3. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4.

Steel Design Information for Fractional Threaded Rods

CHARACTERISTIC		**SYMBOL**	**UNITS**	**NOMINAL ROD DIAMETER, d_o**						
Nominal Size		d_o	inch	$^3/_8$	$^1/_2$	$^5/_8$	$^3/_4$	$^7/_8$	1	$1^1/_4$
Stress Area[1]		A_{se}	$in.^2$	0.0775	0.1419	0.226	0.334	0.462	0.606	0.969
Carbon Steel Threaded Rod	Strength Reduction Factor for Tension Steel Failure[2]	ϕ	-	0.75						
	Strength Reduction Factor for Shear Steel Failure[2]	ϕ	-	0.65						
	Reduction for Seismic Shear	$\alpha_{V,seis}$	-	0.75	0.65	0.65	0.65	0.40	0.40	0.40
	Tension Resistance of Carbon Steel ASTM F1554 Grade 36	N_{sa}	lb (kN)	4,495 (20.0)	8,230 (36.6)	13,110 (58.3)	19,370 (86.2)	26,795 (119.2)	35,150 (156.4)	56,200 (250.0)
	Tension Resistance of Carbon Steel ASTM A193 B7	N_{sa}	lb (kN)	9,690 (43.1)	17,740 (78.9)	28,250 (125.7)	41,750 (185.7)	57,750 (256.9)	75,750 (337.0)	121,125 (538.8)
	Shear Resistance of Carbon Steel ASTM F1554 Grade 36	V_{sa}	lb (kN)	2,250 (10.0)	4,940 (22.0)	7,865 (35.0)	11,625 (51.7)	16,080 (71.5)	21,090 (93.8)	33,720 (150.0)
	Shear Resistance of Carbon Steel ASTM A193 B7	V_{sa}	lb (kN)	4,845 (21.6)	10,645 (47.4)	16,950 (75.4)	25,050 (111.4)	34,650 (154.1)	45,450 (202.2)	72,675 (323.3)
Stainless Steel Threaded Rod	Strength Reduction Factor for Tension Steel Failure[2]	ϕ	-	0.65						
	Strength Reduction Factor for Shear Steel Failure[2]	ϕ	-	0.60						
	Reduction for Seismic Shear	$\alpha_{V,seis}$	-	0.65	0.65	0.65	075	0.60	0.60	0.60
	Tension Resistance of Stainless Steel ASTM F593 CW1	N_{sa}	lb (kN)	7,365 (32.8)	13,480 (60.0)	21,470 (95.5)	-- --	-- --	-- --	-- --
	Tension Resistance of Stainless Steel ASTM F593 CW2	N_{sa}	lb (kN)	-- --	-- --	-- --	25,385 (112.9)	35,110 (156.2)	46,055 (204.9)	73,645 (327.6)
	Tension Resistance of Stainless Steel ASTM F593 SH1	N_{sa}	lb (kN)	8,915 (39.7)	16,320 (72.6)	25,990 (115.6)	--	--	--	--
	Tension Resistance of Stainless Steel ASTM F593 SH2	N_{sa}	lb (kN)	-- --	-- --	-- --	35,070 (156.0)	48,510 (215.8)	63,630 (283.0)	--
	Tension Resistance of Stainless Steel ASTM F593 SH3	N_{sa}	lb (kN)	-- --	-- --	-- --	-- --	-- --	-- --	92,055 (409.5)

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	Shear Resistance of Stainless Steel ASTM F593 CW1	V_{sa}	lb (kN)	3,680 (16.4)	6,740 (30.0)	10,735 (47.8)	-- --	-- --	-- --	-- --
	Shear Resistance of Stainless Steel ASTM F593 CW2	V_{sa}	lb (kN)	-- --	-- --	-- --	12,690 (56.4)	17,555 (78.1)	23,030 (102.4)	36,820 (163.8)
	Shear Resistance of Stainless Steel ASTM F593 SH1	V_{sa}	lb (kN)	4,455 (19.8)	9,790 (43.5)	15,595 (69.4)	-- --	-- --	-- --	-- --
	Shear Resistance of Stainless Steel ASTM F593 SH2	V_{sa}	lb (kN)	-- --	-- --	-- --	17,535 (78.0)	24,255 (107.9)	31,815 (141.5)	-- --
	Shear Resistance of Stainless Steel ASTM F593 SH3	V_{sa}	lb (kN)	-- --	-- --	-- --	-- --	-- --	-- --	46,030 (204.8)

[1]Values provided for steel threaded rod are based on minimum specified strengths and calculated in accordance with ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b or ACI 318-11 Eq. D-2 and Eq. D-29, as applicable.

[2]The tabulated value of ϕ applies when the load combinations of Section 1605.2 of the IBC, ACI 318-14 5.3 or ACI 318-11 9.2 are used in accordance with ACI 318-14 17.3.3 or ACI 318-11 D.4.3. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4.

Steel Design Information for US Rebar (Strength Design)

CHARACTERISTIC		SYMBOL	UNITS	NOMINAL REINFORCING BAR SIZE, d_o						
				No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 10
Reinforcing bar	Nominal bar diameter	d_o	inch	0.375	0.500	0.625	0.750	0.875	1.000	1.250
	Stress Area	A_{se}	in.^{2}	0.11	0.20	0.31	0.44	0.60	0.79	1.27
	Strength Reduction Factor for Tension Steel Failure	ϕ	-	0.65						
	Strength Reduction Factor for Shear Steel Failure	ϕ	-	0.60						
	Reduction for Seismic Shear	$\alpha_{V,seis}$	-	0.75	0.75	0.75	0..80	0.50	0.50	0.50
	Tension Resistance of Carbon Steel ASTM A615 Grade 40	N_{sa}	lb (kN)	6,600 (29.4)	12,000 (53.4)	18,600 (82.7)	26,400 (117.4)	36,000 (160.1)	47,400 (210.8)	76,200 (339.0)
	Tension Resistance of Carbon Steel ASTM A615 Grade 60	N_{sa}	lb (kN)	9,900 (44.0)	18,000 (80.1)	27,900 (124.1)	39,600 (176.1)	54,000 (240.2)	71,100 (316.3)	114,300 (508.4)
	Shear Resistance of Carbon Steel ASTM A615 Grade 40	V_{sa}	lb (kN)	3,960 (17.6)	7,200 (32.0)	11,160 (49.6)	15,840 (70.5)	21,600 (96.1)	28,440 (126.5)	45,720 (203.4)
	Shear Resistance of Carbon Steel ASTM A615 Grade 60	V_{sa}	lb (kN)	5,940 (26.4)	10,800 (48.0)	16,740 (74.5)	23,760 (105.7)	32,400 (144.1)	42,660 (189.8)	68,580 (305.1)

[1]Values provided for steel threaded rod are based on minimum specified strengths and calculated in accordance with ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b or ACI 318-11 Eq. D-2 and Eq. D-29, as applicable.

[2]The tabulated value of ϕ applies when the load combinations of Section 1605.2 of the IBC, ACI 318-14 5.3 or ACI 318-11 9.2 are used in accordance with ACI 318-14 17.3.3 or ACI 318-11 D.4.3. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4.

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Sika AnchorFix®-3030

Bond Strength Design Information for Metric Threaded Rods in Hammer Drilled Holes (Strength Design) - Anchors Installed with Periodic Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	NOMINAL THREADED ROD DIAMETER						
					M10	M12	M16	M20	M24	M27	M30
Minimum Effective Installation Depth			$h_{ef,min}$	in.	2.4	2.8	3.1	3.5	3.8	4.3	4.7
				mm	60	70	80	90	96	108	120
Maximum Effective Installation Depth			$h_{ef,max}$	in.	7.9	9.4	12.6	15.7	18.9	21.3	23.6
				mm	200	240	320	400	480	540	600
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.79	0.99	0.91	0.81	0.88	0.90	0.79
Dry Concrete	Max LTT 110°F (43°C) Max STT 176°F (80°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1615	1585	1535	1485	1435	1395	1360
				N/mm^2	11.1	10.9	10.6	10.2	9.9	9.6	9.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	475	625	750	710	645	660	545
				N/mm^2	3.3	4.3	5.2	4.9	4.4	4.6	3.8
	Max LTT 110°F (43°C) Max STT 145°F (63°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1965	1935	1875	1810	1750	1705	1655
				N/mm^2	13.5	13.3	12.9	12.5	12.1	11.8	11.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	580	765	915	865	785	805	665
				N/mm^2	4.0	5.3	6.3	6.0	5.4	5.6	4.6
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C) Max STT 176°F (80°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1615	1585	1535	1485	1435	1395	1360
				N/mm^2	11.1	10.9	10.6	10.2	9.9	9.6	9.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	475	625	750	710	645	660	545
				N/mm^2	3.3	4.3	5.2	4.9	4.4	4.6	3.8
	Max LTT 110°F (43°C) Max STT 145°F (63°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1965	1935	1875	1810	1750	1705	1655
				N/mm^2	13.5	13.3	12.9	12.5	12.1	11.8	11.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	580	765	915	865	785	805	665
				N/mm^2	4.0	5.3	6.3	6.0	5.4	5.6	4.6
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	3	3	3	1	1
	Resistance Modification Factor, 4d ≤ h_{ef} ≤12d		R_{ws}	-	1	1	0.7	0.7	0.7	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	3	3	3	1	1
	Resistance Modification Factor, 12d < h_{ef} ≤20d [8]		R_{ws}	-	N/A	N/A	0.7	0.7	0.7	1	1
Water-filled Hole	Max LTT 110°F (43°C) Max STT 176°F (80°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	645	635	845	815	790	1395	1360
				N/mm^2	4.5	4.4	5.8	5.6	5.4	9.6	9.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	190	250	415	390	355	660	545
				N/mm^2	1.3	1.7	2.8	2.7	2.4	4.6	3.8
	Max LTT 110°F (43°C) Max STT 145°F (63°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	785	775	1030	995	965	1705	1655
				N/mm^2	5.4	5.3	7.1	6.9	6.6	11.8	11.4
		Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	230	305	505	475	430	805	665
				N/mm^2	1.6	2.1	3.5	3.3	3.0	5.6	4.6
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	3	3
	Resistance modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for Metric Threaded Rods in Hammer Drilled Holes (Strength Design) - Anchors Installed with Continuous Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	NOMINAL THREADED ROD DIAMETER						
					M10	M12	M16	M20	M24	M27	M30
Minimum Effective Installation Depth			$h_{ef,min}$	in.	2.4	2.8	3.1	3.5	3.8	4.3	4.7
				mm	60	70	80	90	96	108	120
Maximum Effective Installation Depth			$h_{ef,max}$	in.	7.9	9.4	12.6	15.7	18.9	21.3	23.6
				mm	200	240	320	400	480	540	600
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.79	0.99	0.91	0.81	0.88	0.90	0.79
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1615	1585	1535	1485	1435	1395	1360
				N/mm^2	11.1	10.9	10.6	10.2	9.9	9.6	9.4
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	475	625	750	710	645	660	545
				N/mm^2	3.3	4.3	5.2	4.9	4.4	4.6	3.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1965	1935	1875	1810	1750	1705	1655
				N/mm^2	13.5	13.3	12.9	12.5	12.1	11.8	11.4
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	580	765	915	865	785	805	665
				N/mm^2	4.0	5.3	6.3	6.0	5.4	5.6	4.6
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1615	1585	1535	1485	1435	1395	1360
				N/mm^2	11.1	10.9	10.6	10.2	9.9	9.6	9.4
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	475	625	750	710	645	660	545
				N/mm^2	3.3	4.3	5.2	4.9	4.4	4.6	3.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1965	1935	1875	1810	1750	1705	1655
				N/mm^2	13.5	13.3	12.9	12.5	12.1	11.8	11.4
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	580	765	915	865	785	805	665
				N/mm^2	4.0	5.3	6.3	6.0	5.4	5.6	4.6
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.85	0.85	0.85	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.85	0.85	0.85	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	760	745	1000	965	930	1395	1360
				N/mm^2	5.22	5.12	6.89	6.63	6.44	9.60	9.40
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	220	295	490	460	420	660	545
				N/mm^2	1.55	2.02	3.38	3.19	2.86	4.60	3.80
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	925	910	1220	1175	1140	1700	1655
				N/mm^2	6.35	6.25	8.39	8.13	7.87	11.80	11.40
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	275	360	595	560	510	805	665
				N/mm^2	1.88	2.49	4.10	3.90	3.51	5.60	4.60
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	3	2
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.85	0.85

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for Metric Reinforcing Bars in Hammer Drilled Holes (Strength Design) – Anchors Installed with Periodic Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	REINFORCING BAR SIZE						
					M10	M12	M16	M20	M25	M28	M32
Nominal Diameter			d_a	mm	10	12	16	20	25	28	32
Minimum Effective Installation Depth			$h_{ef,min}$	in.	2.4	2.8	3.1	3.5	3.9	4.4	5.0
				mm	60	70	80	90	100	112	128
Maximum Effective Installation Depth			$h_{ef,max}$	in.	7.9	9.4	12.6	15.7	19.7	20	25.2
				mm	200	240	320	400	500	560	640
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.82	0.91	0.91	0.88	0.92	0.81	0.82
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm²	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm²	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm²	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm²	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm²	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm²	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm²	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm²	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	3	3	3	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.7	0.7	0.7	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	3	3	3	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.7	0.7	0.7	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	520	510	675	655	635	1120	1085
				N/mm²	3.6	3.5	4.6	4.5	4.4	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	370	360	570	485	465	475	450
				N/mm²	2.6	2.5	3.9	3.3	3.2	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	635	620	820	800	775	1365	1325
				N/mm²	4.4	4.3	5.7	5.5	5.3	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	450	435	695	590	565	580	550
				N/mm²	3.1	3.0	4.8	4.1	3.9	4.0	3.8
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	3	3
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.
[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.
[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.
[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N
[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.
[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.
[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.
[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for Metric Reinforcing Bars in Hammer Drilled Holes (Strength Design) – Anchors Installed with Continuous Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	REINFORCING BAR SIZE						
					M10	M12	M16	M20	M25	M28	M32
Nominal Diameter			d_a	mm	10	12	16	20	25	28	32
Minimum Effective Installation Depth			$h_{ef,min}$	in.	2.4	2.8	3.1	3.5	3.9	4.4	5.0
				mm	60	70	80	90	100	112	128
Maximum Effective Installation Depth			$h_{ef,max}$	in.	7.9	9.4	12.6	15.7	19.7	20	25.2
				mm	200	240	320	400	500	560	640
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.82	0.91	0.91	0.88	0.92	0.81	0.82
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm²	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm²	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm²	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm²	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm²	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm²	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm²	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm²	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.85	0.85	0.85	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.85	0.85	0.85	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	610	595	795	775	750	1120	1085
				N/mm²	4.2	4.1	5.5	5.3	5.2	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	435	420	675	570	550	475	450
				N/mm²	3.0	2.9	4.6	3.9	3.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	745	730	970	945	915	1365	1325
				N/mm²	5.1	5.0	6.7	6.5	6.3	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	530	510	820	700	670	580	550
				N/mm²	3.6	3.5	5.7	4.8	4.6	4.0	3.8
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	2	2
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.85	0.85

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Sika AnchorFix®-3030

Bond Strength Design Information for US Fractional Threaded Rods in Hammer Drilled Holes (Strength Design) - Anchors Installed with Periodic Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	NOMINAL THREADED ROD DIAMETER						
					3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/4"
Minimum Effective Installation Depth			$h_{ef,min}$	in.	2 3/8	2 3/4	3 1/8	3 1/2	3 1/2	4	5
				mm	60	70	79	89	89	102	127
Maximum Effective Installation Depth			$h_{ef,max}$	in.	7 1/2	10	12 1/2	15	17 1/2	20	25
				mm	191	254	318	381	445	508	635
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.79	0.99	0.91	0.81	0.81	0.88	0.79
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1880	1775	1670	1565	1460	1355	1145
				N/mm²	13.0	12.2	11.5	10.8	10.1	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	760	965	1145	1075	965	955	700
				N/mm²	5.2	6.7	7.9	7.4	6.7	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	2290	2165	2035	1910	1780	1655	1395
				N/mm²	15.8	14.9	14.0	13.2	12.3	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	1180	1400	1310	1175	1165	855
				N/mm²	6.4	8.1	9.7	9.0	8.1	8.0	5.9
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1880	1775	1670	1565	1460	1355	1145
				N/mm²	13.0	12.2	11.5	10.8	10.1	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	760	965	1145	1075	965	955	700
				N/mm²	5.2	6.7	7.9	7.4	6.7	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	2290	2165	2035	1910	1780	1655	1395
				N/mm²	15.8	14.9	14.0	13.2	12.3	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	1180	1400	1310	1175	1165	855
				N/mm²	6.4	8.1	9.7	9.0	8.1	8.0	5.9
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	3	3	3	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.7	0.7	0.7	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	3	3	3	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.7	0.7	0.7	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	750	710	920	860	805	1355	1145
				N/mm²	5.2	4.9	6.3	5.9	5.5	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	305	385	630	590	530	955	700
				N/mm²	2.1	2.7	4.3	4.1	3.7	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	915	865	1,120	1,050	980	1655	1395
				N/mm²	6.3	6.0	7.7	7.2	6.7	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	370	470	770	721	645	1165	855
				N/mm²	2.6	3.3	5.3	5.0	4.5	8.0	5.9
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	3	3
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for US Fractional Threaded Rods in Hammer Drilled Holes (Strength Design) - Anchors Installed with Continuous Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	NOMINAL THREADED ROD DIAMETER						
					$^3/_8$"	$^1/_2$"	$^5/_8$"	$^3/_4$"	$^7/_8$"	1"	$1^1/_4$"
Minimum Effective Installation Depth			$h_{ef,min}$	in.	$2^3/_8$	$2^3/_4$	$3^1/_8$	$3^1/_2$	$3^1/_2$	4	5
				mm	60	70	79	89	89	102	127
Maximum Effective Installation Depth			$h_{ef,max}$	in.	$7^1/_2$	10	$12^1/_2$	15	$17^1/_2$	20	25
				mm	191	254	318	381	445	508	635
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.79	0.99	0.91	0.81	0.81	0.88	0.79
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1880	1775	1670	1565	1460	1355	1145
				N/mm^2	13.0	12.2	11.5	10.8	10.1	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	760	965	1145	1075	965	955	700
				N/mm^2	5.2	6.7	7.9	7.4	6.7	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	2290	2165	2035	1910	1780	1655	1395
				N/mm^2	15.8	14.9	14.0	13.2	12.3	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	1180	1400	1310	1175	1165	855
				N/mm^2	6.4	8.1	9.7	9.0	8.1	8.0	5.9
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1880	1775	1670	1565	1460	1355	1145
				N/mm^2	13.0	12.2	11.5	10.8	10.1	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	760	965	1145	1075	965	955	700
				N/mm^2	5.2	6.7	7.9	7.4	6.7	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	2290	2165	2035	1910	1780	1655	1395
				N/mm^2	15.8	14.9	14.0	13.2	12.3	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	1180	1400	1310	1175	1165	855
				N/mm^2	6.4	8.1	9.7	9.0	8.1	8.0	5.9
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.85	0.85	0.85	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.85	0.85	0.85	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	885	835	1085	1015	950	1355	1145
				N/mm^2	6.1	5.8	7.5	7.0	6.5	9.3	7.9
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	355	455	745	700	625	955	700
				N/mm^2	2.5	3.1	5.1	4.8	4.3	6.6	4.8
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1075	1020	1325	1240	1155	1655	1395
				N/mm^2	7.4	7.0	9.1	8.6	8.0	11.4	9.6
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	435	555	910	850	765	1165	855
				N/mm^2	3.0	3.8	6.3	5.9	5.3	8.0	5.9
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	2	2
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.85	0.85

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for US Reinforcing Bars in Hammer Drilled Holes (Strength Design) - Anchors Installed with Periodic Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	REINFORCING BAR SIZE						
					No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 10
Nominal Diameter			d_a	in.	$^3/_8$"	$^1/_2$"	$^5/_8$"	$^3/_4$"	$^7/_8$"	1"	$1^1/_4$"
Minimum Effective Installation Depth			$h_{ef,min}$	in.	$2^3/_8$	$2^3/_4$	$3^1/_8$	$3^1/_2$	$3^1/_2$	4	5
				mm	60	70	79	89	89	102	127
Maximum Effective Installation Depth			$h_{ef,max}$	in.	$7^1/_2$	10	$12^1/_2$	15	$17^1/_2$	20	25
				mm	191	254	318	381	445	508	635
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.90	0.90	0.90	0.94	0.94	0.94	0.94
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm^2	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm^2	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm^2	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm^2	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm^2	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm^2	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm^2	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm^2	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	3	3	3	1	1
	Resistance Modification Factor, 4d ≤ h_{ef} ≤12d		R_{ws}	-	1	1	0.7	0.7	0.7	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	3	3	3	1	1
	Resistance Modification Factor, 12d < h_{ef} ≤20d [8]		R_{ws}	-	N/A	N/A	0.7	0.7	0.7	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	520	510	675	655	635	1120	1085
				N/mm^2	3.6	3.5	4.6	4.5	4.4	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	370	360	570	485	465	475	450
				N/mm^2	2.6	2.5	3.9	3.3	3.2	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	635	620	820	800	775	1365	1325
				N/mm^2	4.4	4.3	5.7	5.5	5.3	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	450	435	695	590	565	580	550
				N/mm^2	3.1	3.0	4.8	4.1	3.9	4.0	3.8
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	3	3
	Resistance modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Bond Strength Design Information for US Reinforcing Bars in Hammer Drilled Holes (Strength Design) - Anchors Installed with Continuous Special Inspection

DESIGN INFORMATION			SYMBOL	UNITS	REINFORCING BAR SIZE						
					No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 10
Nominal Diameter			d_a	in.	$^3/_8$"	$^1/_2$"	$^5/_8$"	$^3/_4$"	$^7/_8$"	1"	$1^1/_4$"
Minimum Effective Installation Depth			$h_{ef,min}$	in.	$2^3/_8$	$2^3/_4$	$3^1/_8$	$3^1/_2$	$3^1/_2$	4	5
				mm	60	70	79	89	89	102	127
Maximum Effective Installation Depth			$h_{ef,max}$	in.	$7^1/_2$	10	$12^1/_2$	15	$17^1/_2$	20	25
				mm	191	254	318	381	445	508	635
Reduction Factor for Seismic Tension			$\alpha_{N,seis}$	-	0.90	0.90	0.90	0.94	0.94	0.94	0.94
Dry Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm^2	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm^2	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm^2	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm^2	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, dry concrete		–	-	1	1	1	1	1	1	1
	Resistance Modification Factor		R_{dry}	-	1	1	1	1	1	1	1
Water Saturated Concrete	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1300	1270	1225	1190	1150	1120	1085
				N/mm^2	9.0	8.8	8.4	8.2	7.9	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	925	895	1035	880	845	475	450
				N/mm^2	6.4	6.2	7.1	6.1	5.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	1585	1550	1495	1450	1405	1365	1325
				N/mm^2	10.9	10.7	10.3	10.0	9.7	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	1125	1090	1265	1075	1030	580	550
				N/mm^2	7.8	7.5	8.7	7.4	7.1	4.0	3.8
	Anchor Category, water saturated concrete, 4d ≤ h_{ef} ≤12d		–	-	1	1	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	1	1	0.85	0.85	0.85	1	1
	Anchor Category, water saturated concrete, 12d < h_{ef} ≤20d		–	-	N/A	N/A	2	2	2	1	1
	Resistance Modification Factor		R_{ws}	-	N/A	N/A	0.85	0.85	0.85	1	1
Water-filled Hole	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	610	595	795	775	750	1120	1085
				N/mm^2	4.2	4.1	5.5	5.3	5.2	7.7	7.5
	Max STT 176°F (80°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	435	420	675	570	550	475	450
				N/mm^2	3.0	2.9	4.6	3.9	3.8	3.3	3.1
	Max LTT 110°F (43°C)	Characteristic Bond Strength in Non-cracked Concrete	$\tau_{k,uncr}$	psi	745	730	970	945	915	1365	1325
				N/mm^2	5.1	5.0	6.7	6.5	6.3	9.4	9.1
	Max STT 145°F (63°C)	Characteristic Bond Strength in Cracked Concrete	$\tau_{k,cr}$	psi	530	510	820	700	670	580	550
				N/mm^2	3.6	3.5	5.7	4.8	4.6	4.0	3.8
	Anchor Category, water-filled hole		–	-	3	3	3	3	3	2	2
	Resistance Modification Factor		R_{wf}	-	0.7	0.7	0.7	0.7	0.7	0.85	0.85

[1] Bond strength values correspond to concrete compressive strength f'_c = 2,500 psi. Bond strength values must not be increased for increased concrete compressive strength.

[2] Tabulated values of R are applicable with the load combinations of CSA A23.3-14 chapter 8. Condition B applies where supplementary reinforcement is not provided as per CSA A23.3-14 section D.5.3 and where pull out or pryout is the governing failure.

[3] Bond strengths shown are for sustained loading. In cases where anchors are subject to short term loads only, bond strengths may be multiplied by 1.13.

[4] For SI: 1 inch = 25.4 mm, 1 in2 = 645.16 mm2, 1 lb = 4.448N

[5] Short-term elevated concrete temperatures are those that occur over brief intervals, e.g., as a result of diurnal cycling. Long-term concrete temperatures are roughly constant over significant periods of time.

[6] For the use of lightweight concrete a modification factor shall be used for bond strength which is determined from ACI 318-14 17.2.6 or ACI 318-11 D.3.6.

[7] Anchors installed in regions assigned to Seismic Design Category C, D, E or F must have the Reduction Factor for Seismic Tension applied.

[8] Bond strength information is derived from AC308 report ESR-4778 issued February 2021 with the data being illustrated for CSA A23.3 design.

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Strength Design Resistance Tables

METRIC THREADED RODS IN UNCRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Anchor Dia.	h_{ef} (mm)	f'_c = 17.2 MPa		f'_c = 27.5 MPa		f'_c = 41.3 MPa		f'_c = 55.1 MPa	
		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
M10	60	12.5	16.9	13.6	22.4	13.6	27.2	13.6	27.2
	130	29.5	58.9	29.5	58.9	29.5	58.9	29.5	58.9
	200	45.3	90.7	45.3	90.7	45.3	90.7	45.3	90.7
M12	70	15.8	19.9	18.7	27.8	18.7	34.1	18.7	37.4
	155	41.4	77.1	41.4	82.8	41.4	82.8	41.4	82.8
	240	64.1	128.2	64.1	128.2	64.1	128.2	64.1	128.2
M16	80	19.3	20.7	24.4	30.1	27.7	39.7	27.7	45.8
	200	69.3	111.2	69.3	138.5	69.3	138.5	69.3	138.5
	320	110.8	221.7	110.8	221.7	110.8	221.7	110.8	221.7
M20	90	23.0	21.9	29.1	31.9	35.7	44.1	37.5	52.3
	245	102.1	147.3	102.1	186.3	102.1	204.1	102.1	204.1
	400	166.6	307.3	166.6	333.3	166.6	333.3	166.6	333.3
M24	96	25.4	21.5	32.1	31.3	39.3	43.4	45.4	54.6
	288	131.8	178.6	139.7	233.2	139.7	279.5	139.7	279.5
	480	232.9	396.8	232.9	465.8	232.9	465.8	232.9	465.8
M27	108	30.3	24.8	38.3	36.1	46.9	49.9	54.2	62.9
	324	157.2	205.7	171.5	273.1	171.5	334.7	171.5	343.0
	540	285.8	464.8	285.8	571.6	285.8	571.6	285.8	571.6
M30	120	35.4	28.1	44.8	41.0	54.9	56.7	63.4	71.4
	360	184.1	233.4	207.3	315.9	207.3	387.1	207.3	414.6
	600	345.5	537.5	345.5	679.7	345.5	691.0	345.5	691.0

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
[3] Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
[5] Calculated values assume sustained tension load acting on the anchor.
[6] Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

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METRIC THREADED RODS IN CRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Anchor Dia.	h_{ef} (mm)	f'_c = 17.2 MPa		f'_c = 27.5 MPa		f'_c = 41.3 MPa		f'_c = 55.1 MPa	
		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
M10	60	4.0	8.1	4.0	8.1	4.0	8.1	4.0	8.1
	130	8.8	17.5	8.8	17.5	8.8	17.5	8.8	17.5
	200	13.5	27.0	13.5	27.0	13.5	27.0	13.5	27.0
M12	70	7.4	12.6	7.4	14.8	7.4	14.8	7.4	14.8
	155	16.3	32.7	16.3	32.7	16.3	32.7	16.3	32.7
	240	25.3	50.6	25.3	50.6	25.3	50.6	25.3	50.6
M16	80	13.6	16.7	13.6	21.1	13.6	25.9	13.6	27.2
	200	34.0	68.0	34.0	68.0	34.0	68.0	34.0	68.0
	320	54.4	108.7	54.4	108.7	54.4	108.7	54.4	108.7
M20	90	16.3	17.8	18.0	23.8	18.0	29.2	18.0	33.7
	245	49.0	94.9	49.0	98.1	49.0	98.1	49.0	98.1
	400	80.0	160.1	80.0	160.1	80.0	160.1	80.0	160.1
M24	96	18.0	17.5	20.7	24.0	20.7	29.4	20.7	34.0
	288	62.1	113.4	62.1	124.2	62.1	124.2	62.1	124.2
	480	103.5	207.0	103.5	207.0	103.5	207.0	103.5	207.0
M27	108	21.5	20.2	27.2	29.3	27.4	36.1	27.4	41.7
	324	82.2	138.9	82.2	164.3	82.2	164.3	82.2	164.3
	540	137.0	273.9	137.0	273.9	137.0	273.9	137.0	273.9
M30	120	25.2	22.9	27.9	30.7	27.9	37.7	27.9	43.5
	360	83.8	145.1	83.8	167.6	83.8	167.6	83.8	167.6
	600	139.7	279.4	139.7	279.4	139.7	279.4	139.7	279.4

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
[3] Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
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METRIC REBAR IN UNCRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Rebar Dia (mm)	h_{ef} (mm)	f'_c = 17.2 MPa		f'_c = 27.5 MPa		f'_c = 41.3 MPa		f'_c = 55.1 MPa	
		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
10	60	11.0	15.6	11.0	19.8	11.0	22.1	11.0	22.1
	130	23.9	47.8	23.9	47.8	23.9	47.8	23.9	47.8
	200	36.8	73.5	36.8	73.5	36.8	73.5	36.8	73.5
12	70	15.1	19.3	15.1	24.4	15.1	30.0	15.1	30.2
	160	34.5	69.0	34.5	69.0	34.5	69.0	34.5	69.0
	240	51.8	103.5	51.8	103.5	51.8	103.5	51.8	103.5
16	80	19.3	20.7	22.0	28.2	22.0	34.5	22.0	39.9
	200	54.9	96.7	54.9	109.8	54.9	109.8	54.9	109.8
	320	87.8	175.6	87.8	175.6	87.8	175.6	87.8	175.6
20	90	23.0	21.9	29.1	39.7	30.1	39.7	30.1	45.9
	250	83.7	133.2	83.7	167.4	83.7	167.4	83.7	167.4
	400	134.0	267.9	134.0	267.9	134.0	267.9	134.0	267.9
25	100	27.0	22.6	34.1	44.5	40.3	44.5	40.3	51.3
	300	121.0	171.2	121.0	242.0	121.0	242.0	121.0	242.0
	500	201.7	368.4	201.7	403.3	201.7	403.3	201.7	403.3
28	112	32.0	25.9	40.4	51.9	49.3	51.9	49.3	59.9
	350	154.1	212.5	154.1	308.2	154.1	308.2	154.1	308.2
	560	246.5	430.0	246.5	493.1	246.5	493.1	246.5	493.1
32	128	39.0	30.4	49.4	61.2	60.5	61.2	62.7	72.1
	400	196.0	255.5	196.0	392.1	196.0	392.1	196.0	392.1
	640	313.7	517.2	313.7	627.3	313.7	627.3	313.7	627.3

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
[3] Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
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METRIC REBAR IN CRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Rebar Dia (mm)	h_{ef} (mm)	f'_c = 17.2 MPa		f'_c = 27.5 MPa		f'_c = 41.3 MPa		f'_c = 55.1 MPa	
		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
10	60	7.8	12.7	7.8	15.7	7.8	15.7	7.8	15.7
	130	17.0	34.0	17.0	34.0	17.0	34.0	17.0	34.0
	200	26.1	52.3	26.1	52.3	26.1	52.3	26.1	52.3
12	70	10.6	15.7	10.6	19.8	10.6	21.3	10.6	21.3
	160	24.3	48.6	24.3	48.6	24.3	48.6	24.3	48.6
	240	36.5	72.9	36.5	72.9	36.5	72.9	36.5	72.9
16	80	13.7	16.8	17.3	24.5	18.6	31.2	18.6	36.0
	200	46.4	87.4	46.4	92.8	46.4	92.8	46.4	92.8
	320	74.2	148.5	74.2	148.5	74.2	148.5	74.2	148.5
20	90	16.3	17.8	20.7	25.9	22.4	33.3	22.4	38.4
	250	62.3	111.5	62.3	124.6	62.3	124.6	62.3	124.6
	400	99.7	199.3	99.7	199.3	99.7	199.3	99.7	199.3
25	100	19.1	18.4	24.2	26.8	29.6	36.9	29.6	42.7
	300	88.8	142.3	88.8	177.7	88.8	177.7	88.8	177.7
	500	148.0	296.1	148.0	296.1	148.0	296.1	148.0	296.1
28	112	21.1	20.1	21.1	25.5	21.1	31.2	21.1	36.0
	350	66.0	127.8	66.0	132.1	66.0	132.1	66.0	132.1
	560	105.7	211.3	105.7	211.3	105.7	211.3	105.7	211.3
32	128	25.9	23.7	25.9	30.0	25.9	36.7	25.9	42.4
	400	81.0	150.4	81.0	162.1	81.0	162.1	81.0	162.1
	640	129.6	259.3	129.6	259.3	129.6	259.3	129.6	259.3

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
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FRACTIONAL SIZED THREADED RODS IN UNCRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Anchor Dia. (inch)	h_{ef} (inch)	f'_c = 2,500 psi		f'_c = 4,000 psi		f'_c = 6,000 psi		f'_c = 8,000 psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
3/8	2 3/8	2,855	2,845	3,419	3,419	3,419	3,419	3,419	3,419
	5	7,198	9,684	7,198	12,250	7,198	14,396	7,198	14,396
	7 1/2	10,797	17,791	10,797	21,595	10,797	21,595	10,797	21,595
1/2	2 3/4	3,557	3,117	4,499	4,540	4,984	5,912	4,984	6,827
	6 1/2	11,780	13,868	11,780	17,542	11,780	21,484	11,780	23,560
	10	18,123	26,463	18,123	33,474	18,123	36,246	18,123	36,246
5/8	3 1/8	4,309	3,432	5,450	4,999	6,661	6,905	6,661	7,973
	8	17,051	18,255	17,051	23,091	17,051	28,281	17,051	32,656
	12 1/2	26,642	35,655	26,642	45,100	26,642	53,284	26,642	53,284
3/4	3 1/2	5,107	3,772	6,460	5,494	7,912	7,600	8,389	9,089
	9	21,060	20,651	21,572	26,501	21,572	32,457	21,572	37,478
	15	35,953	45,079	35,953	57,020	35,953	69,835	35,953	71,905
7/8	3 1/2	5,107	3,439	6,460	5,009	7,912	6,928	9,130	8,718
	10	24,666	22,758	26,087	29,771	26,087	36,462	26,087	42,103
	17 1/2	45,652	54,487	45,652	68,921	45,652	84,411	45,652	91,304
1	4	6,240	4,037	7,893	5,880	9,667	8,132	11,068	10,185
	12	32,424	29,166	33,203	37,421	33,203	45,832	33,203	52,922
	20	55,339	63,655	55,339	80,518	55,339	98,614	55,339	110,678
1 1/4	5	8,721	5,276	11,031	7,685	13,510	10,629	14,613	12,866
	15	43,840	37,372	43,840	47,272	43,840	57,896	43,840	66,853
	25	73,067	80,411	73,067	101,713	73,067	124,573	73,067	143,844

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
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FRACTIONAL SIZED THREADED RODS IN CRACKED CONCRETE

MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Anchor Dia. (inch)	h_{ef} (inch)	f'_c = 2,500 psi		f'_c = 4,000 psi		f'_c = 6,000 psi		f'_c = 8,000 psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
3/8	2 3/8	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382
	5	2,910	5,624	2,910	5,820	2,910	5,820	2,910	5,820
	7 1/2	4,365	8,730	4,365	8,730	4,365	8,730	4,365	8,730
1/2	2 3/4	2,520	2,535	2,710	3,349	2,710	4,102	2,710	4,736
	6 1/2	6,404	9,621	6,404	12,169	6,404	12,809	6,404	12,809
	10	9,853	18,359	9,853	19,706	9,853	19,706	9,853	19,706
5/8	3 1/8	3,052	2,791	3,861	4,064	4,567	5,505	4,567	6,357
	8	11,691	14,556	11,691	18,412	11,691	22,550	11,691	23,381
	12 1/2	18,267	28,430	18,267	35,961	18,267	36,533	18,267	36,533
3/4	3 1/2	3,618	3,067	4,576	4,468	5,605	6,179	5,762	7,255
	9	14,818	16,724	14,818	21,154	14,818	25,908	14,818	29,635
	15	24,696	35,984	24,696	45,516	24,696	49,392	24,696	49,392
7/8	3 1/2	3,618	2,796	4,576	4,073	5,605	5,633	6,035	6,800
	10	17,242	18,359	17,242	23,222	17,242	28,441	17,242	32,841
	17 1/2	30,174	42,501	30,174	53,760	30,174	60,349	30,174	60,349
1	4	4,420	3,282	5,591	4,781	6,847	6,612	7,801	8,256
	12	22,967	23,714	23,402	30,336	23,402	37,154	23,402	42,902
	20	39,003	51,603	39,003	65,273	39,003	78,006	39,003	78,006
1 1/4	5	6,177	4,290	7,814	6,249	8,934	8,294	8,934	9,577
	15	26,802	27,818	26,802	35,187	26,802	43,095	26,802	49,762
	25	44,670	59,854	44,670	75,710	44,670	89,339	44,670	89,339

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
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[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
[5] Calculated values assume sustained tension load acting on the anchor.
[6] Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

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Sika AnchorFix®-3030

US CUSTOMARY REBAR IN UNCRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Rebar No.	h_{ef} (inch)	f'c = 2,500 psi		f'c = 4,000 psi		f'c = 6,000 psi		f'c = 8,000 psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
#3	2 3/8	2,364	2,364	2,364	2,364	2,364	2,364	2,364	2,364
	5	4,977	7,761	4,977	9,818	4,977	9,955	4,977	9,955
	7 1/2	7,466	14,259	7,466	14,932	7,466	14,932	7,466	14,932
#4	2 3/4	3,557	3,117	3,566	3,949	3,566	4,836	3,566	5,584
	6 1/2	8,429	11,344	8,429	14,349	8,429	16,857	8,429	16,857
	10	12,967	21,647	12,967	25,934	12,967	25,934	12,967	25,934
#5	3 1/8	4,309	3,432	4,886	4,681	4,886	5,733	4,886	6,620
	8	12,507	15,158	12,507	19,173	12,507	23,483	12,507	25,015
	12 1/2	19,543	29,605	19,543	37,448	19,543	39,086	19,543	39,086
#6	3 1/2	5,107	3,772	6,379	5,453	6,379	6,678	6,379	7,711
	9	16,403	17,775	16,403	22,484	16,403	27,537	16,403	31,797
	15	27,338	38,246	27,338	48,378	27,338	54,675	27,338	54,675
#7	3 1/2	5,107	3,439	6,460	5,009	7,192	6,543	7,192	7,555
	10	20,548	20,396	20,548	25,799	20,548	31,597	20,548	36,485
	17 1/2	35,959	47,217	35,959	59,726	35,959	71,918	35,959	71,918
#8	4	6,240	4,037	7,893	5,880	9,148	7,868	9,148	9,085
	12	27,445	26,389	27,445	33,380	27,445	40,882	27,445	47,207
	20	45,742	56,781	45,742	71,822	45,742	87,964	45,742	91,483
#10	5	8,721	5,276	11,031	7,685	13,510	10,629	13,848	12,457
	15	41,543	36,184	41,543	45,770	41,543	56,056	41,543	64,728
	25	69,238	77,856	69,238	98,481	69,238	120,614	69,238	138,476

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
[3] Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
[5] Calculated values assume sustained tension load acting on the anchor.
[6] Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

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Sika AnchorFix®-3030

US CUSTOMARY REBAR IN CRACKED CONCRETE
MAX. LONG TERM TEMP.: 110°F; MAX. SHORT TERM TEMP.: 176°F

Rebar No.	h_{ef} (inch)	f'c = 2,500 psi		f'c = 4,000 psi		f'c = 6,000 psi		f'c = 8,000 psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
#3	2 3/8	1,682	1,682	1,682	1,682	1,682	1,682	1,682	1,682
	5	3,542	6,328	3,542	7,083	3,542	7,083	3,542	7,083
	7 1/2	5,312	10,625	5,312	10,625	5,312	10,625	5,312	10,625
#4	2 3/4	2,513	2,531	2,513	3,201	2,513	3,920	2,513	4,527
	6 1/2	5,940	9,196	5,940	11,632	5,940	11,880	5,940	11,880
	10	9,138	17,548	9,138	18,276	9,138	18,276	9,138	18,276
#5	3 1/8	3,052	2,791	3,861	4,064	4,128	5,182	4,128	5,983
	8	10,568	13,700	10,568	17,329	10,568	21,135	10,568	21,135
	12 1/2	16,512	26,758	16,512	33,024	16,512	33,024	16,512	33,024
#6	3 1/2	3,618	3,067	4,576	4,468	4,717	5,572	4,717	6,434
	9	12,130	14,831	12,130	18,760	12,130	22,976	12,130	24,259
	15	20,216	31,912	20,216	40,366	20,216	40,432	20,216	40,432
#7	3 1/2	3,618	2,796	4,576	4,073	5,284	5,438	5,284	6,279
	10	15,098	16,953	15,098	21,444	15,098	26,263	15,098	30,197
	17 1/2	26,422	39,246	26,422	49,643	26,422	52,844	26,422	52,844
#8	4	3,880	3,036	3,880	3,840	3,880	4,703	3,880	5,430
	12	11,640	15,773	11,640	19,951	11,640	23,279	11,640	23,279
	20	19,399	33,938	19,399	38,799	19,399	38,799	19,399	38,799
#10	5	5,743	4,107	5,743	5,195	5,743	6,362	5,743	7,347
	15	17,230	21,340	17,230	26,993	17,230	33,059	17,230	34,459
	25	28,716	45,916	28,716	57,432	28,716	57,432	28,716	57,432

[1] Tabulated values for tension compare concrete breakout and bond failure resistance of a single anchor in tension as per ACI 318-14 17.4.2. Values must be compared to the relevant steel strength information with the lowest value controlling.
[2] Values are calculated assuming Condition B - without supplementary reinforcement provided as set forth in ACI 318-14 17.3.3, ACI 318-11 D.4.3.
[3] Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
[4] Tabulated values are valid for single anchors without consideration for close edges or anchor spacing. Edge Distance and Spacing factors can be applied for both tension and shear, obtained in the Reduction Factor tables in this document.
[5] Calculated values assume sustained tension load acting on the anchor.
[6] Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

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Reduction Factor Tables for Limit State Design

Fractional Threaded Rod

Fractional Threaded Rod 3/8" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2
	mm	60	127	191	60	127	191	60	127	191	60	127	191
Spacing (S) Edge Distance (C_a)	1 1/2	0.25	0.20	0.18	0.61	0.55	0.53	0.18	0.03	0.02	0.54	0.52	0.51
	2	0.29	0.21	0.19	0.64	0.57	0.54	0.28	0.05	0.03	0.56	0.53	0.52
	2 1/4	0.31	0.22	0.20	0.66	0.58	0.55	0.34	0.06	0.03	0.56	0.53	0.52
	3	0.38	0.25	0.21	0.71	0.60	0.57	0.52	0.09	0.05	0.58	0.54	0.53
	4	0.48	0.28	0.23	0.78	0.63	0.59	0.80	0.14	0.07	0.61	0.55	0.54
	4 5/8	0.56	0.31	0.25	0.82	0.65	0.60	0.99	0.17	0.09	0.63	0.56	0.54
	5	0.60	0.32	0.26	0.85	0.67	0.61	1.00	0.19	0.10	0.64	0.57	0.54
	5 3/4	0.69	0.35	0.28	0.90	0.69	0.63	1.00	0.24	0.13	0.66	0.58	0.55
	6	0.72	0.36	0.28	0.92	0.70	0.63	1.00	0.25	0.14	0.67	0.58	0.55
	7	0.84	0.41	0.31	0.99	0.73	0.66	1.00	0.32	0.17	0.70	0.59	0.56
	8	0.96	0.46	0.33	1.00	0.77	0.68	1.00	0.39	0.21	0.73	0.61	0.57
	9	1.00	0.51	0.36	1.00	0.80	0.70	1.00	0.46	0.25	0.75	0.62	0.58
	10	1.00	0.57	0.39	1.00	0.83	0.72	1.00	0.54	0.29	0.78	0.63	0.59
	11	1.00	0.63	0.42	1.00	0.87	0.74	1.00	0.62	0.34	0.81	0.65	0.60
	12	1.00	0.69	0.46	1.00	0.90	0.77	1.00	0.71	0.39	0.84	0.66	0.61
	14	1.00	0.80	0.53	1.00	0.97	0.81	1.00	0.90	0.49	0.90	0.69	0.63
	16	1.00	0.91	0.61	1.00	1.00	0.86	1.00	1.00	0.60	0.95	0.71	0.64
	18	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.71	1.00	0.74	0.66
	24	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.71

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 3/8" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2
	mm	60	127	191	60	127	191	60	127	191	60	127	191
Spacing (S) Edge Distance (C_a)	1 1/2	0.59	0.46	0.42	0.61	0.55	0.53	0.18	0.03	0.02	0.54	0.52	0.51
	2	0.68	0.49	0.44	0.64	0.57	0.54	0.28	0.05	0.03	0.56	0.53	0.52
	2 1/4	0.73	0.51	0.46	0.66	0.58	0.55	0.34	0.06	0.03	0.56	0.53	0.52
	3	0.88	0.57	0.49	0.71	0.60	0.57	0.52	0.09	0.05	0.58	0.54	0.53
	4	1.00	0.66	0.55	0.78	0.63	0.59	0.80	0.14	0.07	0.61	0.55	0.54
	4 5/8	1.00	0.72	0.58	0.82	0.65	0.60	0.99	0.17	0.09	0.63	0.56	0.54
	5	1.00	0.75	0.60	0.85	0.67	0.61	1.00	0.19	0.10	0.64	0.57	0.54
	5 3/4	1.00	0.82	0.64	0.90	0.69	0.63	1.00	0.24	0.13	0.66	0.58	0.55
	6	1.00	0.85	0.66	0.92	0.70	0.63	1.00	0.25	0.14	0.67	0.58	0.55
	7	1.00	0.95	0.72	0.99	0.73	0.66	1.00	0.32	0.17	0.70	0.59	0.56
	8	1.00	1.00	0.78	1.00	0.77	0.68	1.00	0.39	0.21	0.73	0.61	0.57
	9	1.00	1.00	0.85	1.00	0.80	0.70	1.00	0.46	0.25	0.75	0.62	0.58
	10	1.00	1.00	0.91	1.00	0.83	0.72	1.00	0.54	0.29	0.78	0.63	0.59
	11	1.00	1.00	0.98	1.00	0.87	0.74	1.00	0.62	0.34	0.81	0.65	0.60
	12	1.00	1.00	1.00	1.00	0.90	0.77	1.00	0.71	0.39	0.84	0.66	0.61
	14	1.00	1.00	1.00	1.00	0.97	0.81	1.00	0.90	0.49	0.90	0.69	0.63
	16	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.60	0.95	0.71	0.64
	18	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.71	1.00	0.74	0.66
	24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.71

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1/2" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10
	mm	70	165	254	70	165	254	70	165	254	70	165	254
Spacing (S) Edge Distance (C_a)	1 1/2	0.24	0.18	0.17	0.59	0.54	0.53	0.08	0.02	0.01	0.54	0.52	0.51
	2 7/8	0.33	0.22	0.19	0.67	0.57	0.55	0.22	0.06	0.03	0.57	0.53	0.52
	3	0.34	0.22	0.20	0.68	0.58	0.55	0.23	0.07	0.04	0.57	0.53	0.52
	3 1/2	0.38	0.24	0.20	0.71	0.59	0.56	0.29	0.09	0.05	0.59	0.54	0.52
	4	0.42	0.25	0.21	0.74	0.60	0.57	0.36	0.11	0.06	0.60	0.54	0.53
	4 1/2	0.47	0.26	0.22	0.77	0.62	0.58	0.43	0.13	0.07	0.61	0.55	0.53
	5	0.52	0.28	0.23	0.80	0.63	0.58	0.50	0.15	0.08	0.62	0.55	0.53
	5 1/2	0.57	0.29	0.24	0.83	0.64	0.59	0.58	0.17	0.09	0.64	0.56	0.54
	6	0.62	0.31	0.25	0.86	0.65	0.60	0.66	0.20	0.10	0.65	0.56	0.54
	7	0.73	0.34	0.26	0.92	0.68	0.62	0.83	0.25	0.13	0.67	0.57	0.55
	7 1/4	0.75	0.34	0.27	0.94	0.69	0.62	0.88	0.26	0.14	0.68	0.58	0.55
	8	0.83	0.37	0.28	0.98	0.71	0.63	1.00	0.30	0.16	0.70	0.58	0.55
	9	0.94	0.40	0.30	1.00	0.73	0.65	1.00	0.36	0.19	0.72	0.59	0.56
	10	1.00	0.44	0.32	1.00	0.76	0.67	1.00	0.42	0.22	0.75	0.61	0.57
	11	1.00	0.48	0.34	1.00	0.78	0.68	1.00	0.49	0.25	0.77	0.62	0.58
	12	1.00	0.53	0.36	1.00	0.81	0.70	1.00	0.55	0.29	0.80	0.63	0.58
	14	1.00	0.62	0.41	1.00	0.86	0.73	1.00	0.70	0.37	0.85	0.65	0.60
	16	1.00	0.70	0.46	1.00	0.91	0.77	1.00	0.85	0.45	0.90	0.67	0.61
	18	1.00	0.79	0.51	1.00	0.96	0.80	1.00	1.00	0.53	0.95	0.69	0.62
	24	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.82	1.00	0.75	0.66
	30	1.00	1.00	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.71

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1/2" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10
	mm	70	165	254	70	165	254	70	165	254	70	165	254
Spacing (S) Edge Distance (C_a)	1 1/2	0.55	0.43	0.40	0.59	0.54	0.53	0.08	0.02	0.01	0.54	0.52	0.51
	2 7/8	0.77	0.51	0.45	0.67	0.57	0.55	0.22	0.06	0.03	0.57	0.53	0.52
	3	0.79	0.52	0.46	0.68	0.58	0.55	0.23	0.07	0.04	0.57	0.53	0.52
	3 1/2	0.88	0.55	0.47	0.71	0.59	0.56	0.29	0.09	0.05	0.59	0.54	0.52
	4	0.98	0.58	0.49	0.74	0.60	0.57	0.36	0.11	0.06	0.60	0.54	0.53
	4 1/2	1.00	0.61	0.51	0.77	0.62	0.58	0.43	0.13	0.07	0.61	0.55	0.53
	5	1.00	0.65	0.53	0.80	0.63	0.58	0.50	0.15	0.08	0.62	0.55	0.53
	5 1/2	1.00	0.68	0.55	0.83	0.64	0.59	0.58	0.17	0.09	0.64	0.56	0.54
	6	1.00	0.71	0.57	0.86	0.65	0.60	0.66	0.20	0.10	0.65	0.56	0.54
	7	1.00	0.79	0.62	0.92	0.68	0.62	0.83	0.25	0.13	0.67	0.57	0.55
	7 1/4	1.00	0.80	0.63	0.94	0.69	0.62	0.88	0.26	0.14	0.68	0.58	0.55
	8	1.00	0.86	0.66	0.98	0.71	0.63	1.00	0.30	0.16	0.70	0.58	0.55
	9	1.00	0.94	0.70	1.00	0.73	0.65	1.00	0.36	0.19	0.72	0.59	0.56
	10	1.00	1.00	0.75	1.00	0.76	0.67	1.00	0.42	0.22	0.75	0.61	0.57
	11	1.00	1.00	0.80	1.00	0.78	0.68	1.00	0.49	0.25	0.77	0.62	0.58
	12	1.00	1.00	0.85	1.00	0.81	0.70	1.00	0.55	0.29	0.80	0.63	0.58
	14	1.00	1.00	0.95	1.00	0.86	0.73	1.00	0.70	0.37	0.85	0.65	0.60
	16	1.00	1.00	1.00	1.00	0.91	0.77	1.00	0.85	0.45	0.90	0.67	0.61
	18	1.00	1.00	1.00	1.00	0.96	0.80	1.00	1.00	0.53	0.95	0.69	0.62
	24	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.82	1.00	0.75	0.66
	30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.71

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 5/8" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2
	mm	79	203	318	79	203	318	79	203	318	79	203	318
Spacing (S) Edge Distance (C_a)	1 3/4	0.24	0.18	0.17	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	3 1/4	0.33	0.21	0.19	0.67	0.57	0.54	0.24	0.06	0.03	0.57	0.53	0.52
	3 3/4	0.36	0.22	0.20	0.70	0.58	0.55	0.30	0.08	0.04	0.58	0.53	0.52
	4	0.38	0.23	0.20	0.71	0.58	0.55	0.33	0.09	0.04	0.59	0.54	0.52
	5	0.46	0.25	0.21	0.77	0.60	0.57	0.45	0.12	0.06	0.61	0.54	0.53
	5 1/2	0.50	0.26	0.22	0.79	0.61	0.57	0.52	0.14	0.07	0.62	0.55	0.53
	6	0.55	0.27	0.23	0.82	0.63	0.58	0.60	0.16	0.08	0.63	0.55	0.53
	7	0.64	0.30	0.24	0.87	0.65	0.59	0.75	0.20	0.10	0.66	0.56	0.54
	7 3/8	0.67	0.31	0.24	0.89	0.65	0.60	0.81	0.22	0.11	0.67	0.56	0.54
	8	0.73	0.32	0.25	0.93	0.67	0.61	0.92	0.25	0.13	0.68	0.57	0.54
	9	0.82	0.35	0.27	0.98	0.69	0.62	1.00	0.29	0.15	0.70	0.58	0.55
	9 1/4	0.85	0.35	0.27	0.99	0.69	0.62	1.00	0.31	0.16	0.71	0.58	0.55
	10	0.91	0.37	0.28	1.00	0.71	0.63	1.00	0.34	0.18	0.72	0.59	0.56
	11	1.00	0.40	0.30	1.00	0.73	0.65	1.00	0.40	0.20	0.75	0.60	0.56
	12	1.00	0.43	0.31	1.00	0.75	0.66	1.00	0.45	0.23	0.77	0.61	0.57
	14	1.00	0.50	0.35	1.00	0.79	0.69	1.00	0.57	0.29	0.81	0.62	0.58
	16	1.00	0.57	0.38	1.00	0.83	0.71	1.00	0.70	0.36	0.86	0.64	0.59
	18	1.00	0.64	0.41	1.00	0.88	0.74	1.00	0.83	0.43	0.90	0.66	0.60
	24	1.00	0.86	0.55	1.00	1.00	0.82	1.00	1.00	0.66	1.00	0.71	0.63
	30	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.92	1.00	0.76	0.67
	36	1.00	1.00	0.82	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.82	0.70

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 5/8" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2
	mm	79	203	318	79	203	318	79	203	318	79	203	318
Spacing (S) Edge Distance (C_a)	1 3/4	0.56	0.43	0.40	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	3 1/4	0.77	0.50	0.44	0.67	0.57	0.54	0.24	0.06	0.03	0.57	0.53	0.52
	3 3/4	0.85	0.52	0.46	0.70	0.58	0.55	0.30	0.08	0.04	0.58	0.53	0.52
	4	0.89	0.53	0.46	0.71	0.58	0.55	0.33	0.09	0.04	0.59	0.54	0.52
	5	1.00	0.58	0.49	0.77	0.60	0.57	0.45	0.12	0.06	0.61	0.54	0.53
	5 1/2	1.00	0.61	0.51	0.79	0.61	0.57	0.52	0.14	0.07	0.62	0.55	0.53
	6	1.00	0.64	0.53	0.82	0.63	0.58	0.60	0.16	0.08	0.63	0.55	0.53
	7	1.00	0.69	0.56	0.87	0.65	0.59	0.75	0.20	0.10	0.66	0.56	0.54
	7 3/8	1.00	0.71	0.57	0.89	0.65	0.60	0.81	0.22	0.11	0.67	0.56	0.54
	8	1.00	0.75	0.59	0.93	0.67	0.61	0.92	0.25	0.13	0.68	0.57	0.54
	9	1.00	0.81	0.62	0.98	0.69	0.62	1.00	0.29	0.15	0.70	0.58	0.55
	9 1/4	1.00	0.82	0.63	0.99	0.69	0.62	1.00	0.31	0.16	0.71	0.58	0.55
	10	1.00	0.87	0.66	1.00	0.71	0.63	1.00	0.34	0.18	0.72	0.59	0.56
	11	1.00	0.93	0.69	1.00	0.73	0.65	1.00	0.40	0.20	0.75	0.60	0.56
	12	1.00	1.00	0.73	1.00	0.75	0.66	1.00	0.45	0.23	0.77	0.61	0.57
	14	1.00	1.00	0.81	1.00	0.79	0.69	1.00	0.57	0.29	0.81	0.62	0.58
	16	1.00	1.00	0.89	1.00	0.83	0.71	1.00	0.70	0.36	0.86	0.64	0.59
	18	1.00	1.00	0.97	1.00	0.88	0.74	1.00	0.83	0.43	0.90	0.66	0.60
	24	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	0.66	1.00	0.71	0.63
	30	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.92	1.00	0.76	0.67
	36	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.82	0.70

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 3/4" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	9	15	3 1/2	9	15	3 1/2	9	15	3 1/2	9	15
	mm	89	229	381	89	229	381	89	229	381	89	229	381
Spacing (S) Edge Distance (C_a)	1 7/8	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.03	0.01	0.54	0.52	0.51
	4	0.35	0.22	0.19	0.69	0.57	0.54	0.30	0.08	0.04	0.58	0.53	0.52
	4 1/8	0.36	0.22	0.19	0.70	0.58	0.55	0.31	0.08	0.04	0.59	0.53	0.52
	4 1/4	0.37	0.22	0.19	0.70	0.58	0.55	0.32	0.09	0.04	0.59	0.53	0.52
	5	0.41	0.24	0.20	0.74	0.59	0.56	0.41	0.11	0.05	0.60	0.54	0.52
	5 3/4	0.47	0.25	0.21	0.77	0.61	0.56	0.51	0.14	0.06	0.62	0.55	0.53
	6	0.49	0.26	0.21	0.79	0.61	0.57	0.54	0.15	0.07	0.62	0.55	0.53
	7	0.57	0.28	0.22	0.83	0.63	0.58	0.69	0.19	0.09	0.64	0.56	0.53
	8	0.65	0.30	0.23	0.88	0.65	0.59	0.84	0.23	0.11	0.66	0.56	0.54
	8 1/2	0.69	0.31	0.24	0.90	0.66	0.59	0.92	0.25	0.12	0.68	0.57	0.54
	9	0.73	0.32	0.25	0.93	0.67	0.60	1.00	0.27	0.13	0.69	0.57	0.54
	10	0.82	0.34	0.26	0.98	0.69	0.61	1.00	0.32	0.15	0.71	0.58	0.55
	10 1/4	0.84	0.35	0.26	0.99	0.69	0.61	1.00	0.33	0.15	0.71	0.58	0.55
	11	0.90	0.37	0.27	1.00	0.70	0.62	1.00	0.37	0.17	0.73	0.59	0.55
	12	0.98	0.39	0.28	1.00	0.72	0.63	1.00	0.42	0.19	0.75	0.60	0.56
	14	1.00	0.44	0.31	1.00	0.76	0.66	1.00	0.52	0.24	0.79	0.61	0.57
	16	1.00	0.51	0.33	1.00	0.80	0.68	1.00	0.64	0.30	0.83	0.63	0.58
	18	1.00	0.57	0.36	1.00	0.83	0.70	1.00	0.76	0.36	0.87	0.64	0.59
	24	1.00	0.76	0.46	1.00	0.94	0.77	1.00	1.00	0.55	0.99	0.69	0.62
	30	1.00	0.95	0.57	1.00	1.00	0.83	1.00	1.00	0.76	1.00	0.74	0.64
	36	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	1.00	1.00	0.79	0.67

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 3/4" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
$h_{ef:}$	in	3 1/2	9	15	3 1/2	9	15	3 1/2	9	15	3 1/2	9	15
	mm	89	229	381	89	229	381	89	229	381	89	229	381
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.42	0.39	0.59	0.53	0.52	0.10	0.03	0.01	0.54	0.52	0.51
	4	0.82	0.51	0.44	0.69	0.57	0.54	0.30	0.08	0.04	0.58	0.53	0.52
	4 1/8	0.84	0.52	0.45	0.70	0.58	0.55	0.31	0.08	0.04	0.59	0.53	0.52
	4 1/4	0.85	0.52	0.45	0.70	0.58	0.55	0.32	0.09	0.04	0.59	0.53	0.52
	5	0.96	0.56	0.47	0.74	0.59	0.56	0.41	0.11	0.05	0.60	0.54	0.52
	5 3/4	1.00	0.59	0.49	0.77	0.61	0.56	0.51	0.14	0.06	0.62	0.55	0.53
	6	1.00	0.60	0.49	0.79	0.61	0.57	0.54	0.15	0.07	0.62	0.55	0.53
	7	1.00	0.65	0.52	0.83	0.63	0.58	0.69	0.19	0.09	0.64	0.56	0.53
	8	1.00	0.70	0.55	0.88	0.65	0.59	0.84	0.23	0.11	0.66	0.56	0.54
	8 1/2	1.00	0.72	0.56	0.90	0.66	0.59	0.92	0.25	0.12	0.68	0.57	0.54
	9	1.00	0.75	0.57	0.93	0.67	0.60	1.00	0.27	0.13	0.69	0.57	0.54
	10	1.00	0.80	0.60	0.98	0.69	0.61	1.00	0.32	0.15	0.71	0.58	0.55
	10 1/4	1.00	0.82	0.61	0.99	0.69	0.61	1.00	0.33	0.15	0.71	0.58	0.55
	11	1.00	0.86	0.63	1.00	0.70	0.62	1.00	0.37	0.17	0.73	0.59	0.55
	12	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.42	0.19	0.75	0.60	0.56
	14	1.00	1.00	0.72	1.00	0.76	0.66	1.00	0.52	0.24	0.79	0.61	0.57
	16	1.00	1.00	0.78	1.00	0.80	0.68	1.00	0.64	0.30	0.83	0.63	0.58
	18	1.00	1.00	0.85	1.00	0.83	0.70	1.00	0.76	0.36	0.87	0.64	0.59
	24	1.00	1.00	1.00	1.00	0.94	0.77	1.00	1.00	0.55	0.99	0.69	0.62
	30	1.00	1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.76	1.00	0.74	0.64
	36	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	0.79	0.67
	0	0.35	0.35	0.35	0.50	0.50	0.50	0.00	0.00	0.00	0.50	0.50	0.50

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
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Fractional Threaded Rod 7/8" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2
	mm	89	254	445	89	254	445	89	254	445	89	254	445
Spacing (S) Edge Distance (C_a)	1 7/8	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	4	0.35	0.21	0.18	0.69	0.57	0.54	0.31	0.07	0.03	0.58	0.53	0.52
	4 1/8	0.36	0.21	0.19	0.70	0.57	0.54	0.33	0.08	0.03	0.59	0.53	0.52
	4 1/4	0.37	0.22	0.19	0.70	0.57	0.54	0.34	0.08	0.03	0.59	0.53	0.52
	5	0.41	0.23	0.19	0.74	0.58	0.55	0.43	0.10	0.04	0.61	0.54	0.52
	5 3/4	0.47	0.24	0.20	0.77	0.60	0.55	0.54	0.13	0.05	0.62	0.54	0.52
	6	0.49	0.25	0.20	0.79	0.60	0.56	0.57	0.14	0.06	0.63	0.54	0.53
	7	0.57	0.26	0.21	0.83	0.62	0.57	0.72	0.17	0.07	0.65	0.55	0.53
	8	0.65	0.28	0.22	0.88	0.63	0.58	0.88	0.21	0.09	0.67	0.56	0.53
	8 1/2	0.69	0.29	0.23	0.90	0.64	0.58	0.96	0.23	0.10	0.68	0.56	0.54
	9	0.73	0.30	0.23	0.93	0.65	0.59	1.00	0.25	0.11	0.69	0.57	0.54
	10	0.82	0.32	0.24	0.98	0.67	0.60	1.00	0.29	0.13	0.71	0.57	0.54
	10 1/4	0.84	0.33	0.24	0.99	0.67	0.60	1.00	0.30	0.13	0.72	0.58	0.54
	11	0.90	0.34	0.25	1.00	0.68	0.60	1.00	0.34	0.15	0.73	0.58	0.55
	12	0.98	0.36	0.26	1.00	0.70	0.61	1.00	0.38	0.17	0.75	0.59	0.55
	14	1.00	0.41	0.28	1.00	0.73	0.63	1.00	0.48	0.21	0.80	0.60	0.56
	16	1.00	0.46	0.30	1.00	0.77	0.65	1.00	0.59	0.26	0.84	0.62	0.57
	18	1.00	0.51	0.33	1.00	0.80	0.67	1.00	0.70	0.30	0.88	0.63	0.58
	24	1.00	0.69	0.40	1.00	0.90	0.73	1.00	1.00	0.47	1.00	0.68	0.60
	30	1.00	0.86	0.49	1.00	1.00	0.79	1.00	1.00	0.66	1.00	0.72	0.63
	36	1.00	1.00	0.59	1.00	1.00	0.84	1.00	1.00	0.86	1.00	0.77	0.65

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 7/8" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2
	mm	89	254	445	89	254	445	89	254	445	89	254	445
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.41	0.39	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	4	0.82	0.49	0.43	0.69	0.57	0.54	0.31	0.07	0.03	0.58	0.53	0.52
	4 1/8	0.84	0.50	0.43	0.70	0.57	0.54	0.33	0.08	0.03	0.59	0.53	0.52
	4 1/4	0.85	0.50	0.43	0.70	0.57	0.54	0.34	0.08	0.03	0.59	0.53	0.52
	5	0.96	0.53	0.45	0.74	0.58	0.55	0.43	0.10	0.04	0.61	0.54	0.52
	5 3/4	1.00	0.56	0.47	0.77	0.60	0.55	0.54	0.13	0.05	0.62	0.54	0.52
	6	1.00	0.57	0.47	0.79	0.60	0.56	0.57	0.14	0.06	0.63	0.54	0.53
	7	1.00	0.62	0.49	0.83	0.62	0.57	0.72	0.17	0.07	0.65	0.55	0.53
	8	1.00	0.66	0.52	0.88	0.63	0.58	0.88	0.21	0.09	0.67	0.56	0.53
	8 1/2	1.00	0.68	0.53	0.90	0.64	0.58	0.96	0.23	0.10	0.68	0.56	0.54
	9	1.00	0.70	0.54	0.93	0.65	0.59	1.00	0.25	0.11	0.69	0.57	0.54
	10	1.00	0.75	0.56	0.98	0.67	0.60	1.00	0.29	0.13	0.71	0.57	0.54
	10 1/4	1.00	0.76	0.57	0.99	0.67	0.60	1.00	0.30	0.13	0.72	0.58	0.54
	11	1.00	0.80	0.59	1.00	0.68	0.60	1.00	0.34	0.15	0.73	0.58	0.55
	12	1.00	0.85	0.61	1.00	0.70	0.61	1.00	0.38	0.17	0.75	0.59	0.55
	14	1.00	0.95	0.66	1.00	0.73	0.63	1.00	0.48	0.21	0.80	0.60	0.56
	16	1.00	1.00	0.71	1.00	0.77	0.65	1.00	0.59	0.26	0.84	0.62	0.57
	18	1.00	1.00	0.76	1.00	0.80	0.67	1.00	0.70	0.30	0.88	0.63	0.58
	24	1.00	1.00	0.93	1.00	0.90	0.73	1.00	1.00	0.47	1.00	0.68	0.60
	30	1.00	1.00	1.00	1.00	1.00	0.79	1.00	1.00	0.66	1.00	0.72	0.63
	36	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.86	1.00	0.77	0.65

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4	12	20	4	12	20	4	12	20	4	12	20
	mm	102	305	508	102	305	508	102	305	508	102	305	508
Spacing (S) Edge Distance (C_a)	2 1/2	0.25	0.18	0.17	0.60	0.53	0.52	0.13	0.03	0.01	0.55	0.52	0.51
	3	0.27	0.19	0.17	0.63	0.54	0.53	0.18	0.04	0.02	0.56	0.52	0.51
	4	0.32	0.20	0.18	0.67	0.56	0.53	0.27	0.06	0.03	0.58	0.53	0.52
	5	0.37	0.21	0.19	0.71	0.57	0.54	0.38	0.08	0.04	0.60	0.53	0.52
	6	0.43	0.23	0.20	0.75	0.58	0.55	0.50	0.11	0.05	0.61	0.54	0.52
	7	0.50	0.24	0.20	0.79	0.60	0.56	0.63	0.14	0.06	0.63	0.54	0.53
	8	0.57	0.26	0.21	0.83	0.61	0.57	0.77	0.17	0.08	0.65	0.55	0.53
	9	0.64	0.27	0.22	0.88	0.63	0.58	0.92	0.20	0.09	0.67	0.56	0.53
	10	0.71	0.29	0.23	0.92	0.64	0.58	1.00	0.24	0.11	0.69	0.56	0.54
	12	0.86	0.32	0.25	1.00	0.67	0.60	1.00	0.31	0.15	0.73	0.58	0.55
	14	1.00	0.36	0.26	1.00	0.69	0.62	1.00	0.39	0.18	0.77	0.59	0.55
	16	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.48	0.22	0.81	0.60	0.56
	18	1.00	0.43	0.30	1.00	0.75	0.65	1.00	0.57	0.27	0.84	0.61	0.57
	20	1.00	0.48	0.32	1.00	0.78	0.67	1.00	0.67	0.31	0.88	0.63	0.58
	22	1.00	0.52	0.34	1.00	0.81	0.68	1.00	0.77	0.36	0.92	0.64	0.58
	24	1.00	0.57	0.36	1.00	0.83	0.70	1.00	0.88	0.41	0.96	0.65	0.59
	26	1.00	0.62	0.38	1.00	0.86	0.72	1.00	1.00	0.46	1.00	0.67	0.60
	28	1.00	0.67	0.41	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.68	0.61
	30	1.00	0.71	0.43	1.00	0.92	0.75	1.00	1.00	0.57	1.00	0.69	0.61
	32	1.00	0.76	0.46	1.00	0.94	0.77	1.00	1.00	0.63	1.00	0.70	0.62
	34	1.00	0.81	0.49	1.00	0.97	0.78	1.00	1.00	0.69	1.00	0.72	0.63

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4	12	20	4	12	20	4	12	20	4	12	20
	mm	102	305	508	102	305	508	102	305	508	102	305	508
Spacing (S) Edge Distance (C_a)	2 1/2	0.58	0.42	0.39	0.60	0.53	0.52	0.13	0.03	0.01	0.55	0.52	0.51
	3	0.64	0.44	0.40	0.63	0.54	0.53	0.18	0.04	0.02	0.56	0.52	0.51
	4	0.75	0.47	0.42	0.67	0.56	0.53	0.27	0.06	0.03	0.58	0.53	0.52
	5	0.87	0.50	0.44	0.71	0.57	0.54	0.38	0.08	0.04	0.60	0.53	0.52
	6	1.00	0.53	0.46	0.75	0.58	0.55	0.50	0.11	0.05	0.61	0.54	0.52
	7	1.00	0.57	0.47	0.79	0.60	0.56	0.63	0.14	0.06	0.63	0.54	0.53
	8	1.00	0.60	0.49	0.83	0.61	0.57	0.77	0.17	0.08	0.65	0.55	0.53
	9	1.00	0.64	0.51	0.88	0.63	0.58	0.92	0.20	0.09	0.67	0.56	0.53
	10	1.00	0.67	0.53	0.92	0.64	0.58	1.00	0.24	0.11	0.69	0.56	0.54
	12	1.00	0.75	0.57	1.00	0.67	0.60	1.00	0.31	0.15	0.73	0.58	0.55
	14	1.00	0.83	0.62	1.00	0.69	0.62	1.00	0.39	0.18	0.77	0.59	0.55
	16	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.48	0.22	0.81	0.60	0.56
	18	1.00	1.00	0.70	1.00	0.75	0.65	1.00	0.57	0.27	0.84	0.61	0.57
	20	1.00	1.00	0.75	1.00	0.78	0.67	1.00	0.67	0.31	0.88	0.63	0.58
	22	1.00	1.00	0.80	1.00	0.81	0.68	1.00	0.77	0.36	0.92	0.64	0.58
	24	1.00	1.00	0.85	1.00	0.83	0.70	1.00	0.88	0.41	0.96	0.65	0.59
	26	1.00	1.00	0.90	1.00	0.86	0.72	1.00	1.00	0.46	1.00	0.67	0.60
	28	1.00	1.00	0.95	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.68	0.61
	30	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.57	1.00	0.69	0.61
	32	1.00	1.00	1.00	1.00	0.94	0.77	1.00	1.00	0.63	1.00	0.70	0.62
	34	1.00	1.00	1.00	1.00	0.97	0.78	1.00	1.00	0.69	1.00	0.72	0.63

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1 1/4" - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15	25	5	15	25	5	15	25	5	15	25
	mm	127	381	635	127	381	635	127	381	635	127	381	635
Spacing (S) Edge Distance (C_a)	2 3/4	0.24	0.18	0.17	0.59	0.53	0.52	0.12	0.03	0.01	0.54	0.51	0.51
	3 1/8	0.25	0.18	0.17	0.60	0.53	0.52	0.15	0.03	0.02	0.55	0.52	0.51
	6 1/4	0.37	0.21	0.19	0.71	0.57	0.54	0.42	0.09	0.04	0.60	0.53	0.52
	7	0.41	0.22	0.19	0.73	0.58	0.55	0.50	0.11	0.05	0.61	0.54	0.52
	8	0.46	0.23	0.20	0.77	0.59	0.55	0.61	0.14	0.06	0.63	0.54	0.53
	9	0.51	0.25	0.21	0.80	0.60	0.56	0.73	0.16	0.08	0.65	0.55	0.53
	10	0.57	0.26	0.21	0.83	0.61	0.57	0.86	0.19	0.09	0.66	0.55	0.53
	11	0.63	0.27	0.22	0.87	0.62	0.57	0.99	0.22	0.10	0.68	0.56	0.54
	12	0.69	0.28	0.23	0.90	0.63	0.58	1.00	0.25	0.12	0.70	0.57	0.54
	14	0.80	0.31	0.24	0.97	0.66	0.59	1.00	0.31	0.15	0.73	0.58	0.55
	16	0.91	0.33	0.25	1.00	0.68	0.61	1.00	0.38	0.18	0.76	0.59	0.55
	18	1.00	0.36	0.27	1.00	0.70	0.62	1.00	0.46	0.21	0.79	0.60	0.56
	20	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.54	0.25	0.83	0.61	0.57
	22	1.00	0.42	0.30	1.00	0.74	0.65	1.00	0.62	0.29	0.86	0.62	0.57
	24	1.00	0.46	0.31	1.00	0.77	0.66	1.00	0.71	0.33	0.89	0.63	0.58
	26	1.00	0.50	0.33	1.00	0.79	0.67	1.00	0.80	0.37	0.92	0.64	0.58
	30	1.00	0.57	0.36	1.00	0.83	0.70	1.00	0.99	0.46	0.99	0.66	0.60
	32	1.00	0.61	0.38	1.00	0.86	0.71	1.00	1.00	0.51	1.00	0.67	0.60
	34	1.00	0.65	0.40	1.00	0.88	0.73	1.00	1.00	0.55	1.00	0.69	0.61
	36	1.00	0.69	0.41	1.00	0.90	0.74	1.00	1.00	0.60	1.00	0.70	0.62
	38	1.00	0.72	0.43	1.00	0.92	0.75	1.00	1.00	0.65	1.00	0.71	0.62

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Threaded Rod 1 1/4" - Cracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15	25	5	15	25	5	15	25	5	15	25
	mm	127	381	635	127	381	635	127	381	635	127	381	635
Spacing (S) Edge Distance (C_a)	2 3/4	0.55	0.41	0.39	0.59	0.53	0.52	0.12	0.03	0.01	0.54	0.51	0.51
	3 1/8	0.58	0.42	0.39	0.60	0.53	0.52	0.15	0.03	0.02	0.55	0.52	0.51
	6 1/4	0.87	0.50	0.44	0.71	0.57	0.54	0.42	0.09	0.04	0.60	0.53	0.52
	7	0.95	0.52	0.45	0.73	0.58	0.55	0.50	0.11	0.05	0.61	0.54	0.52
	8	1.00	0.55	0.46	0.77	0.59	0.55	0.61	0.14	0.06	0.63	0.54	0.53
	9	1.00	0.57	0.48	0.80	0.60	0.56	0.73	0.16	0.08	0.65	0.55	0.53
	10	1.00	0.60	0.49	0.83	0.61	0.57	0.86	0.19	0.09	0.66	0.55	0.53
	11	1.00	0.63	0.51	0.87	0.62	0.57	0.99	0.22	0.10	0.68	0.56	0.54
	12	1.00	0.66	0.53	0.90	0.63	0.58	1.00	0.25	0.12	0.70	0.57	0.54
	14	1.00	0.72	0.56	0.97	0.66	0.59	1.00	0.31	0.15	0.73	0.58	0.55
	16	1.00	0.78	0.59	1.00	0.68	0.61	1.00	0.38	0.18	0.76	0.59	0.55
	18	1.00	0.85	0.62	1.00	0.70	0.62	1.00	0.46	0.21	0.79	0.60	0.56
	20	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.54	0.25	0.83	0.61	0.57
	22	1.00	0.98	0.69	1.00	0.74	0.65	1.00	0.62	0.29	0.86	0.62	0.57
	24	1.00	1.00	0.73	1.00	0.77	0.66	1.00	0.71	0.33	0.89	0.63	0.58
	26	1.00	1.00	0.77	1.00	0.79	0.67	1.00	0.80	0.37	0.92	0.64	0.58
	30	1.00	1.00	0.85	1.00	0.83	0.70	1.00	0.99	0.46	0.99	0.66	0.60
	32	1.00	1.00	0.89	1.00	0.86	0.71	1.00	1.00	0.51	1.00	0.67	0.60
	34	1.00	1.00	0.93	1.00	0.88	0.73	1.00	1.00	0.55	1.00	0.69	0.61
	36	1.00	1.00	0.97	1.00	0.90	0.74	1.00	1.00	0.60	1.00	0.70	0.62
	38	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.65	1.00	0.71	0.62

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Fractional Rebar

US Fractional Rebar #3 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2
	mm	60	127	191	60	127	191	60	127	191	60	127	191
Spacing (S) Edge Distance (C_a)	1 1/2	0.25	0.20	0.18	0.61	0.55	0.53	0.18	0.03	0.02	0.56	0.53	0.52
	2	0.29	0.21	0.19	0.64	0.57	0.54	0.28	0.05	0.03	0.57	0.54	0.52
	2 1/4	0.31	0.22	0.20	0.66	0.58	0.55	0.34	0.06	0.03	0.58	0.54	0.53
	3	0.38	0.25	0.21	0.71	0.60	0.57	0.52	0.09	0.05	0.61	0.55	0.54
	4	0.48	0.28	0.23	0.78	0.63	0.59	0.80	0.14	0.07	0.65	0.57	0.55
	4 5/8	0.56	0.31	0.25	0.82	0.65	0.60	0.99	0.17	0.09	0.67	0.58	0.55
	5	0.60	0.32	0.26	0.85	0.67	0.61	1.00	0.19	0.10	0.69	0.59	0.56
	5 3/4	0.69	0.35	0.28	0.90	0.69	0.63	1.00	0.24	0.13	0.72	0.60	0.57
	6	0.72	0.36	0.28	0.92	0.70	0.63	1.00	0.25	0.14	0.72	0.61	0.57
	7	0.84	0.41	0.31	0.99	0.73	0.66	1.00	0.32	0.17	0.76	0.62	0.58
	8	0.96	0.46	0.33	1.00	0.77	0.68	1.00	0.39	0.21	0.80	0.64	0.59
	9	1.00	0.51	0.36	1.00	0.80	0.70	1.00	0.46	0.25	0.84	0.66	0.61
	10	1.00	0.57	0.39	1.00	0.83	0.72	1.00	0.54	0.29	0.87	0.68	0.62
	11	1.00	0.63	0.42	1.00	0.87	0.74	1.00	0.62	0.34	0.91	0.70	0.63
	12	1.00	0.69	0.46	1.00	0.90	0.77	1.00	0.71	0.39	0.95	0.71	0.64
	14	1.00	0.80	0.53	1.00	0.97	0.81	1.00	0.90	0.49	1.00	0.75	0.67
	16	1.00	0.91	0.61	1.00	1.00	0.86	1.00	1.00	0.60	1.00	0.78	0.69
	18	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.71	1.00	0.82	0.71
	24	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.78

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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US Fractional Rebar #3 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
$h_{ef:}$	in	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2	2 3/8	5	7 1/2
	mm	60	127	191	60	127	191	60	127	191	60	127	191
Spacing (S) Edge Distance (C_a)	1 1/2	0.59	0.46	0.42	0.61	0.55	0.53	0.18	0.03	0.02	0.56	0.53	0.52
	2	0.68	0.49	0.44	0.64	0.57	0.54	0.28	0.05	0.03	0.57	0.54	0.52
	2 1/4	0.73	0.51	0.46	0.66	0.58	0.55	0.34	0.06	0.03	0.58	0.54	0.53
	3	0.88	0.57	0.49	0.71	0.60	0.57	0.52	0.09	0.05	0.61	0.55	0.54
	4	1.00	0.66	0.55	0.78	0.63	0.59	0.80	0.14	0.07	0.65	0.57	0.55
	4 5/8	1.00	0.72	0.58	0.82	0.65	0.60	0.99	0.17	0.09	0.67	0.58	0.55
	5	1.00	0.75	0.60	0.85	0.67	0.61	1.00	0.19	0.10	0.69	0.59	0.56
	5 3/4	1.00	0.82	0.64	0.90	0.69	0.63	1.00	0.24	0.13	0.72	0.60	0.57
	6	1.00	0.85	0.66	0.92	0.70	0.63	1.00	0.25	0.14	0.72	0.61	0.57
	7	1.00	0.95	0.72	0.99	0.73	0.66	1.00	0.32	0.17	0.76	0.62	0.58
	8	1.00	1.00	0.78	1.00	0.77	0.68	1.00	0.39	0.21	0.80	0.64	0.59
	9	1.00	1.00	0.85	1.00	0.80	0.70	1.00	0.46	0.25	0.84	0.66	0.61
	10	1.00	1.00	0.91	1.00	0.83	0.72	1.00	0.54	0.29	0.87	0.68	0.62
	11	1.00	1.00	0.98	1.00	0.87	0.74	1.00	0.62	0.34	0.91	0.70	0.63
	12	1.00	1.00	1.00	1.00	0.90	0.77	1.00	0.71	0.39	0.95	0.71	0.64
	14	1.00	1.00	1.00	1.00	0.97	0.81	1.00	0.90	0.49	1.00	0.75	0.67
	16	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.60	1.00	0.78	0.69
	18	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.71	1.00	0.82	0.71
	24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.78

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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US Fractional Rebar #4 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10
	mm	70	165	254	70	165	254	70	165	254	70	165	254
Spacing (S) Edge Distance (C_a)	1 1/2	0.24	0.18	0.17	0.59	0.54	0.53	0.08	0.02	0.01	0.55	0.52	0.51
	2 7/8	0.33	0.22	0.19	0.67	0.57	0.55	0.22	0.06	0.03	0.59	0.54	0.53
	3	0.34	0.22	0.20	0.68	0.58	0.55	0.23	0.07	0.04	0.60	0.54	0.53
	3 1/2	0.38	0.24	0.20	0.71	0.59	0.56	0.29	0.09	0.05	0.61	0.55	0.53
	4	0.42	0.25	0.21	0.74	0.60	0.57	0.36	0.11	0.06	0.63	0.56	0.54
	4 1/2	0.47	0.26	0.22	0.77	0.62	0.58	0.43	0.13	0.07	0.65	0.56	0.54
	5	0.52	0.28	0.23	0.80	0.63	0.58	0.50	0.15	0.08	0.66	0.57	0.55
	5 1/2	0.57	0.29	0.24	0.83	0.64	0.59	0.58	0.17	0.09	0.68	0.58	0.55
	6	0.62	0.31	0.25	0.86	0.65	0.60	0.66	0.20	0.10	0.70	0.58	0.55
	7	0.73	0.34	0.26	0.92	0.68	0.62	0.83	0.25	0.13	0.73	0.60	0.56
	7 1/4	0.75	0.34	0.27	0.94	0.69	0.62	0.88	0.26	0.14	0.74	0.60	0.57
	8	0.83	0.37	0.28	0.98	0.71	0.63	1.00	0.30	0.16	0.76	0.61	0.57
	9	0.94	0.40	0.30	1.00	0.73	0.65	1.00	0.36	0.19	0.80	0.62	0.58
	10	1.00	0.44	0.32	1.00	0.76	0.67	1.00	0.42	0.22	0.83	0.64	0.59
	11	1.00	0.48	0.34	1.00	0.78	0.68	1.00	0.49	0.25	0.86	0.65	0.60
	12	1.00	0.53	0.36	1.00	0.81	0.70	1.00	0.55	0.29	0.89	0.67	0.61
	14	1.00	0.62	0.41	1.00	0.86	0.73	1.00	0.70	0.37	0.96	0.69	0.63
	16	1.00	0.70	0.46	1.00	0.91	0.77	1.00	0.85	0.45	1.00	0.72	0.64
	18	1.00	0.79	0.51	1.00	0.96	0.80	1.00	1.00	0.53	1.00	0.75	0.66
	24	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.82	1.00	0.83	0.72
	30	1.00	1.00	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.77

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #4 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10	2 3/4	6 1/2	10
	mm	70	165	254	70	165	254	70	165	254	70	165	254
Spacing (S) Edge Distance (C_a)	1 1/2	0.55	0.43	0.40	0.59	0.54	0.53	0.08	0.02	0.01	0.55	0.52	0.51
	2 7/8	0.77	0.51	0.45	0.67	0.57	0.55	0.22	0.06	0.03	0.59	0.54	0.53
	3	0.79	0.52	0.46	0.68	0.58	0.55	0.23	0.07	0.04	0.60	0.54	0.53
	3 1/2	0.88	0.55	0.47	0.71	0.59	0.56	0.29	0.09	0.05	0.61	0.55	0.53
	4	0.98	0.58	0.49	0.74	0.60	0.57	0.36	0.11	0.06	0.63	0.56	0.54
	4 1/2	1.00	0.61	0.51	0.77	0.62	0.58	0.43	0.13	0.07	0.65	0.56	0.54
	5	1.00	0.65	0.53	0.80	0.63	0.58	0.50	0.15	0.08	0.66	0.57	0.55
	5 1/2	1.00	0.68	0.55	0.83	0.64	0.59	0.58	0.17	0.09	0.68	0.58	0.55
	6	1.00	0.71	0.57	0.86	0.65	0.60	0.66	0.20	0.10	0.70	0.58	0.55
	7	1.00	0.79	0.62	0.92	0.68	0.62	0.83	0.25	0.13	0.73	0.60	0.56
	7 1/4	1.00	0.80	0.63	0.94	0.69	0.62	0.88	0.26	0.14	0.74	0.60	0.57
	8	1.00	0.86	0.66	0.98	0.71	0.63	1.00	0.30	0.16	0.76	0.61	0.57
	9	1.00	0.94	0.70	1.00	0.73	0.65	1.00	0.36	0.19	0.80	0.62	0.58
	10	1.00	1.00	0.75	1.00	0.76	0.67	1.00	0.42	0.22	0.83	0.64	0.59
	11	1.00	1.00	0.80	1.00	0.78	0.68	1.00	0.49	0.25	0.86	0.65	0.60
	12	1.00	1.00	0.85	1.00	0.81	0.70	1.00	0.55	0.29	0.89	0.67	0.61
	14	1.00	1.00	0.95	1.00	0.86	0.73	1.00	0.70	0.37	0.96	0.69	0.63
	16	1.00	1.00	1.00	1.00	0.91	0.77	1.00	0.85	0.45	1.00	0.72	0.64
	18	1.00	1.00	1.00	1.00	0.96	0.80	1.00	1.00	0.53	1.00	0.75	0.66
	24	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.82	1.00	0.83	0.72
	30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.77

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #5 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2
	mm	79	203	318	79	203	318	79	203	318	79	203	318
Spacing (S) Edge Distance (C_a)	1 3/4	0.24	0.18	0.17	0.59	0.54	0.52	0.09	0.03	0.01	0.55	0.52	0.51
	3 1/4	0.33	0.21	0.19	0.67	0.57	0.54	0.24	0.06	0.03	0.59	0.53	0.52
	3 3/4	0.36	0.22	0.20	0.70	0.58	0.55	0.30	0.08	0.04	0.60	0.54	0.53
	4	0.38	0.23	0.20	0.71	0.58	0.55	0.33	0.09	0.04	0.61	0.54	0.53
	5	0.46	0.25	0.21	0.77	0.60	0.57	0.45	0.12	0.06	0.64	0.55	0.53
	5 1/2	0.50	0.26	0.22	0.79	0.61	0.57	0.52	0.14	0.07	0.65	0.56	0.54
	6	0.55	0.27	0.23	0.82	0.63	0.58	0.60	0.16	0.08	0.66	0.56	0.54
	7	0.64	0.30	0.24	0.87	0.65	0.59	0.75	0.20	0.10	0.69	0.57	0.55
	7 3/8	0.67	0.31	0.24	0.89	0.65	0.60	0.81	0.22	0.11	0.70	0.58	0.55
	8	0.73	0.32	0.25	0.93	0.67	0.61	0.92	0.25	0.13	0.72	0.59	0.55
	9	0.82	0.35	0.27	0.98	0.69	0.62	1.00	0.29	0.15	0.75	0.60	0.56
	9 1/4	0.85	0.35	0.27	0.99	0.69	0.62	1.00	0.31	0.16	0.75	0.60	0.56
	10	0.91	0.37	0.28	1.00	0.71	0.63	1.00	0.34	0.18	0.77	0.61	0.57
	11	1.00	0.40	0.30	1.00	0.73	0.65	1.00	0.40	0.20	0.80	0.62	0.57
	12	1.00	0.43	0.31	1.00	0.75	0.66	1.00	0.45	0.23	0.83	0.63	0.58
	14	1.00	0.50	0.35	1.00	0.79	0.69	1.00	0.57	0.29	0.88	0.65	0.60
	16	1.00	0.57	0.38	1.00	0.83	0.71	1.00	0.70	0.36	0.94	0.67	0.61
	18	1.00	0.64	0.41	1.00	0.88	0.74	1.00	0.83	0.43	0.99	0.69	0.62
	24	1.00	0.86	0.55	1.00	1.00	0.82	1.00	1.00	0.66	1.00	0.76	0.66
	30	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	0.92	1.00	0.82	0.70
	36	1.00	1.00	0.82	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.88	0.75

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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US Fractional Rebar #5 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2	3 1/8	8	12 1/2
	mm	79	203	318	79	203	318	79	203	318	79	203	318
Spacing (S) Edge Distance (C_a)	1 3/4	0.56	0.43	0.40	0.59	0.54	0.52	0.09	0.03	0.01	0.55	0.52	0.51
	3 1/4	0.77	0.50	0.44	0.67	0.57	0.54	0.24	0.06	0.03	0.59	0.53	0.52
	3 3/4	0.85	0.52	0.46	0.70	0.58	0.55	0.30	0.08	0.04	0.60	0.54	0.53
	4	0.89	0.53	0.46	0.71	0.58	0.55	0.33	0.09	0.04	0.61	0.54	0.53
	5	1.00	0.58	0.49	0.77	0.60	0.57	0.45	0.12	0.06	0.64	0.55	0.53
	5 1/2	1.00	0.61	0.51	0.79	0.61	0.57	0.52	0.14	0.07	0.65	0.56	0.54
	6	1.00	0.64	0.53	0.82	0.63	0.58	0.60	0.16	0.08	0.66	0.56	0.54
	7	1.00	0.69	0.56	0.87	0.65	0.59	0.75	0.20	0.10	0.69	0.57	0.55
	7 3/8	1.00	0.71	0.57	0.89	0.65	0.60	0.81	0.22	0.11	0.70	0.58	0.55
	8	1.00	0.75	0.59	0.93	0.67	0.61	0.92	0.25	0.13	0.72	0.59	0.55
	9	1.00	0.81	0.62	0.98	0.69	0.62	1.00	0.29	0.15	0.75	0.60	0.56
	9 1/4	1.00	0.82	0.63	0.99	0.69	0.62	1.00	0.31	0.16	0.75	0.60	0.56
	10	1.00	0.87	0.66	1.00	0.71	0.63	1.00	0.34	0.18	0.77	0.61	0.57
	11	1.00	0.93	0.69	1.00	0.73	0.65	1.00	0.40	0.20	0.80	0.62	0.57
	12	1.00	1.00	0.73	1.00	0.75	0.66	1.00	0.45	0.23	0.83	0.63	0.58
	14	1.00	1.00	0.81	1.00	0.79	0.69	1.00	0.57	0.29	0.88	0.65	0.60
	16	1.00	1.00	0.89	1.00	0.83	0.71	1.00	0.70	0.36	0.94	0.67	0.61
	18	1.00	1.00	0.97	1.00	0.88	0.74	1.00	0.83	0.43	0.99	0.69	0.62
	24	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	0.66	1.00	0.76	0.66
	30	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.92	1.00	0.82	0.70
	36	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.88	0.75

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #6 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	8	15	3 1/2	8	15	3 1/2	8	15	3 1/2	8	15
	mm	89	203	381	89	203	381	89	203	381	89	203	381
Spacing (S) Edge Distance (C_a)	1 7/8	0.23	0.19	0.17	0.59	0.54	0.52	0.10	0.03	0.01	0.55	0.52	0.51
	4	0.35	0.23	0.19	0.69	0.58	0.54	0.30	0.10	0.04	0.60	0.55	0.52
	4 1/8	0.36	0.23	0.19	0.70	0.59	0.55	0.31	0.10	0.04	0.61	0.55	0.52
	4 1/4	0.37	0.23	0.19	0.70	0.59	0.55	0.32	0.10	0.04	0.61	0.55	0.53
	5	0.41	0.25	0.20	0.74	0.60	0.56	0.41	0.13	0.05	0.63	0.56	0.53
	5 3/4	0.47	0.27	0.21	0.77	0.62	0.56	0.51	0.16	0.06	0.65	0.57	0.53
	6	0.49	0.27	0.21	0.79	0.63	0.57	0.54	0.18	0.07	0.66	0.57	0.54
	7	0.57	0.30	0.22	0.83	0.65	0.58	0.69	0.22	0.09	0.68	0.58	0.54
	8	0.65	0.32	0.23	0.88	0.67	0.59	0.84	0.27	0.11	0.71	0.59	0.55
	8 1/2	0.69	0.33	0.24	0.90	0.68	0.59	0.92	0.30	0.12	0.72	0.60	0.55
	9	0.73	0.35	0.25	0.93	0.69	0.60	1.00	0.32	0.13	0.73	0.60	0.55
	10	0.82	0.37	0.26	0.98	0.71	0.61	1.00	0.38	0.15	0.76	0.61	0.56
	10 1/4	0.84	0.38	0.26	0.99	0.71	0.61	1.00	0.39	0.15	0.77	0.62	0.56
	11	0.90	0.40	0.27	1.00	0.73	0.62	1.00	0.44	0.17	0.79	0.62	0.57
	12	0.98	0.43	0.28	1.00	0.75	0.63	1.00	0.50	0.19	0.81	0.64	0.57
	14	1.00	0.50	0.31	1.00	0.79	0.66	1.00	0.63	0.24	0.86	0.66	0.58
	16	1.00	0.57	0.33	1.00	0.83	0.68	1.00	0.76	0.30	0.92	0.68	0.60
	18	1.00	0.64	0.36	1.00	0.88	0.70	1.00	0.91	0.36	0.97	0.70	0.61
	24	1.00	0.86	0.46	1.00	1.00	0.77	1.00	1.00	0.55	1.00	0.77	0.65
	30	1.00	1.00	0.57	1.00	1.00	0.83	1.00	1.00	0.76	1.00	0.84	0.68
	36	1.00	1.00	0.69	1.00	1.00	0.90	1.00	1.00	1.00	1.00	0.91	0.72

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
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US Fractional Rebar #6 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	8	15	3 1/2	8	15	3 1/2	8	15	3 1/2	8	15
	mm	89	203	381	89	203	381	89	203	381	89	203	381
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.43	0.39	0.59	0.54	0.52	0.10	0.03	0.01	0.55	0.52	0.51
	4	0.82	0.53	0.44	0.69	0.58	0.54	0.30	0.10	0.04	0.60	0.55	0.52
	4 1/8	0.84	0.54	0.45	0.70	0.59	0.55	0.31	0.10	0.04	0.61	0.55	0.52
	4 1/4	0.85	0.55	0.45	0.70	0.59	0.55	0.32	0.10	0.04	0.61	0.55	0.53
	5	0.96	0.58	0.47	0.74	0.60	0.56	0.41	0.13	0.05	0.63	0.56	0.53
	5 3/4	1.00	0.62	0.49	0.77	0.62	0.56	0.51	0.16	0.06	0.65	0.57	0.53
	6	1.00	0.64	0.49	0.79	0.63	0.57	0.54	0.18	0.07	0.66	0.57	0.54
	7	1.00	0.69	0.52	0.83	0.65	0.58	0.69	0.22	0.09	0.68	0.58	0.54
	8	1.00	0.75	0.55	0.88	0.67	0.59	0.84	0.27	0.11	0.71	0.59	0.55
	8 1/2	1.00	0.78	0.56	0.90	0.68	0.59	0.92	0.30	0.12	0.72	0.60	0.55
	9	1.00	0.81	0.57	0.93	0.69	0.60	1.00	0.32	0.13	0.73	0.60	0.55
	10	1.00	0.87	0.60	0.98	0.71	0.61	1.00	0.38	0.15	0.76	0.61	0.56
	10 1/4	1.00	0.89	0.61	0.99	0.71	0.61	1.00	0.39	0.15	0.77	0.62	0.56
	11	1.00	0.93	0.63	1.00	0.73	0.62	1.00	0.44	0.17	0.79	0.62	0.57
	12	1.00	1.00	0.66	1.00	0.75	0.63	1.00	0.50	0.19	0.81	0.64	0.57
	14	1.00	1.00	0.72	1.00	0.79	0.66	1.00	0.63	0.24	0.86	0.66	0.58
	16	1.00	1.00	0.78	1.00	0.83	0.68	1.00	0.76	0.30	0.92	0.68	0.60
	18	1.00	1.00	0.85	1.00	0.88	0.70	1.00	0.91	0.36	0.97	0.70	0.61
	24	1.00	1.00	1.00	1.00	1.00	0.77	1.00	1.00	0.55	1.00	0.77	0.65
	30	1.00	1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.76	1.00	0.84	0.68
	36	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	0.91	0.72

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #7 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2
	mm	89	254	445	89	254	445	89	254	445	89	254	445
Spacing (S) Edge Distance (C_a)	1 7/8	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.02	0.01	0.55	0.52	0.51
	4	0.35	0.21	0.18	0.69	0.57	0.54	0.31	0.07	0.03	0.61	0.54	0.52
	4 1/8	0.36	0.21	0.19	0.70	0.57	0.54	0.33	0.08	0.03	0.61	0.54	0.52
	4 1/4	0.37	0.22	0.19	0.70	0.57	0.54	0.34	0.08	0.03	0.61	0.54	0.52
	5	0.41	0.23	0.19	0.74	0.58	0.55	0.43	0.10	0.04	0.63	0.55	0.53
	5 3/4	0.47	0.24	0.20	0.77	0.60	0.55	0.54	0.13	0.05	0.65	0.55	0.53
	6	0.49	0.25	0.20	0.79	0.60	0.56	0.57	0.14	0.06	0.66	0.56	0.53
	7	0.57	0.26	0.21	0.83	0.62	0.57	0.72	0.17	0.07	0.68	0.56	0.54
	8	0.65	0.28	0.22	0.88	0.63	0.58	0.88	0.21	0.09	0.71	0.57	0.54
	8 1/2	0.69	0.29	0.23	0.90	0.64	0.58	0.96	0.23	0.10	0.72	0.58	0.54
	9	0.73	0.30	0.23	0.93	0.65	0.59	1.00	0.25	0.11	0.74	0.58	0.55
	10	0.82	0.32	0.24	0.98	0.67	0.60	1.00	0.29	0.13	0.76	0.59	0.55
	10 1/4	0.84	0.33	0.24	0.99	0.67	0.60	1.00	0.30	0.13	0.77	0.59	0.55
	11	0.90	0.34	0.25	1.00	0.68	0.60	1.00	0.34	0.15	0.79	0.60	0.56
	12	0.98	0.36	0.26	1.00	0.70	0.61	1.00	0.38	0.17	0.82	0.61	0.56
	14	1.00	0.41	0.28	1.00	0.73	0.63	1.00	0.48	0.21	0.87	0.63	0.57
	16	1.00	0.46	0.30	1.00	0.77	0.65	1.00	0.59	0.26	0.92	0.65	0.58
	18	1.00	0.51	0.33	1.00	0.80	0.67	1.00	0.70	0.30	0.97	0.67	0.59
	24	1.00	0.69	0.40	1.00	0.90	0.73	1.00	1.00	0.47	1.00	0.72	0.63
	30	1.00	0.86	0.49	1.00	1.00	0.79	1.00	1.00	0.66	1.00	0.78	0.66
	36	1.00	1.00	0.59	1.00	1.00	0.84	1.00	1.00	0.86	1.00	0.83	0.69

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #7 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2	3 1/2	10	17 1/2
	mm	89	254	445	89	254	445	89	254	445	89	254	445
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.41	0.39	0.59	0.53	0.52	0.10	0.02	0.01	0.55	0.52	0.51
	4	0.82	0.49	0.43	0.69	0.57	0.54	0.31	0.07	0.03	0.61	0.54	0.52
	4 1/8	0.84	0.50	0.43	0.70	0.57	0.54	0.33	0.08	0.03	0.61	0.54	0.52
	4 1/4	0.85	0.50	0.43	0.70	0.57	0.54	0.34	0.08	0.03	0.61	0.54	0.52
	5	0.96	0.53	0.45	0.74	0.58	0.55	0.43	0.10	0.04	0.63	0.55	0.53
	5 3/4	1.00	0.56	0.47	0.77	0.60	0.55	0.54	0.13	0.05	0.65	0.55	0.53
	6	1.00	0.57	0.47	0.79	0.60	0.56	0.57	0.14	0.06	0.66	0.56	0.53
	7	1.00	0.62	0.49	0.83	0.62	0.57	0.72	0.17	0.07	0.68	0.56	0.54
	8	1.00	0.66	0.52	0.88	0.63	0.58	0.88	0.21	0.09	0.71	0.57	0.54
	8 1/2	1.00	0.68	0.53	0.90	0.64	0.58	0.96	0.23	0.10	0.72	0.58	0.54
	9	1.00	0.70	0.54	0.93	0.65	0.59	1.00	0.25	0.11	0.74	0.58	0.55
	10	1.00	0.75	0.56	0.98	0.67	0.60	1.00	0.29	0.13	0.76	0.59	0.55
	10 1/4	1.00	0.76	0.57	0.99	0.67	0.60	1.00	0.30	0.13	0.77	0.59	0.55
	11	1.00	0.80	0.59	1.00	0.68	0.60	1.00	0.34	0.15	0.79	0.60	0.56
	12	1.00	0.85	0.61	1.00	0.70	0.61	1.00	0.38	0.17	0.82	0.61	0.56
	14	1.00	0.95	0.66	1.00	0.73	0.63	1.00	0.48	0.21	0.87	0.63	0.57
	16	1.00	1.00	0.71	1.00	0.77	0.65	1.00	0.59	0.26	0.92	0.65	0.58
	18	1.00	1.00	0.76	1.00	0.80	0.67	1.00	0.70	0.30	0.97	0.67	0.59
	24	1.00	1.00	0.93	1.00	0.90	0.73	1.00	1.00	0.47	1.00	0.72	0.63
	30	1.00	1.00	1.00	1.00	1.00	0.79	1.00	1.00	0.66	1.00	0.78	0.66
	36	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.86	1.00	0.83	0.69

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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US Fractional Rebar #8 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4	12	20	4	12	20	4	12	20	4	12	20
	mm	102	305	508	102	305	508	102	305	508	102	305	508
Spacing (S) Edge Distance (C_a)	2 1/2	0.25	0.18	0.17	0.60	0.53	0.52	0.13	0.03	0.01	0.57	0.52	0.51
	3	0.27	0.19	0.17	0.63	0.54	0.53	0.18	0.04	0.02	0.59	0.53	0.52
	4	0.32	0.20	0.18	0.67	0.56	0.53	0.27	0.06	0.03	0.62	0.54	0.52
	5	0.37	0.21	0.19	0.71	0.57	0.54	0.38	0.08	0.04	0.65	0.55	0.53
	6	0.43	0.23	0.20	0.75	0.58	0.55	0.50	0.11	0.05	0.67	0.56	0.53
	7	0.50	0.24	0.20	0.79	0.60	0.56	0.63	0.14	0.06	0.70	0.57	0.54
	8	0.57	0.26	0.21	0.83	0.61	0.57	0.77	0.17	0.08	0.73	0.58	0.55
	9	0.64	0.27	0.22	0.88	0.63	0.58	0.92	0.20	0.09	0.76	0.59	0.55
	10	0.71	0.29	0.23	0.92	0.64	0.58	1.00	0.24	0.11	0.79	0.60	0.56
	12	0.86	0.32	0.25	1.00	0.67	0.60	1.00	0.31	0.15	0.85	0.62	0.57
	14	1.00	0.36	0.26	1.00	0.69	0.62	1.00	0.39	0.18	0.91	0.64	0.58
	16	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.48	0.22	0.96	0.65	0.59
	28	1.00	0.67	0.41	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.77	0.66
	20	1.00	0.48	0.32	1.00	0.78	0.67	1.00	0.67	0.31	1.00	0.69	0.62
	22	1.00	0.52	0.34	1.00	0.81	0.68	1.00	0.77	0.36	1.00	0.71	0.63
	24	1.00	0.57	0.36	1.00	0.83	0.70	1.00	0.88	0.41	1.00	0.73	0.64
	26	1.00	0.62	0.38	1.00	0.86	0.72	1.00	1.00	0.46	1.00	0.75	0.65
	28	1.00	0.67	0.41	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.77	0.66
	30	1.00	0.71	0.43	1.00	0.92	0.75	1.00	1.00	0.57	1.00	0.79	0.67
	32	1.00	0.76	0.46	1.00	0.94	0.77	1.00	1.00	0.63	1.00	0.81	0.69
	34	1.00	0.81	0.49	1.00	0.97	0.78	1.00	1.00	0.69	1.00	0.83	0.70
	36	1.00	0.86	0.51	1.00	1.00	0.80	1.00	1.00	0.75	1.00	0.85	0.71

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #8 – Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4	12	20	4	12	20	4	12	20	4	12	20
	mm	102	305	508	102	305	508	102	305	508	102	305	508
Spacing (S) Edge Distance (C_a)	2 1/2	0.58	0.42	0.39	0.60	0.53	0.52	0.13	0.03	0.01	0.57	0.52	0.51
	3	0.64	0.44	0.40	0.63	0.54	0.53	0.18	0.04	0.02	0.59	0.53	0.52
	4	0.75	0.47	0.42	0.67	0.56	0.53	0.27	0.06	0.03	0.62	0.54	0.52
	5	0.87	0.50	0.44	0.71	0.57	0.54	0.38	0.08	0.04	0.65	0.55	0.53
	6	1.00	0.53	0.46	0.75	0.58	0.55	0.50	0.11	0.05	0.67	0.56	0.53
	7	1.00	0.57	0.47	0.79	0.60	0.56	0.63	0.14	0.06	0.70	0.57	0.54
	8	1.00	0.60	0.49	0.83	0.61	0.57	0.77	0.17	0.08	0.73	0.58	0.55
	9	1.00	0.64	0.51	0.88	0.63	0.58	0.92	0.20	0.09	0.76	0.59	0.55
	10	1.00	0.67	0.53	0.92	0.64	0.58	1.00	0.24	0.11	0.79	0.60	0.56
	12	1.00	0.75	0.57	1.00	0.67	0.60	1.00	0.31	0.15	0.85	0.62	0.57
	14	1.00	0.83	0.62	1.00	0.69	0.62	1.00	0.39	0.18	0.91	0.64	0.58
	16	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.48	0.22	0.96	0.65	0.59
	28	1.00	1.00	0.95	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.77	0.66
	20	1.00	1.00	0.75	1.00	0.78	0.67	1.00	0.67	0.31	1.00	0.69	0.62
	22	1.00	1.00	0.80	1.00	0.81	0.68	1.00	0.77	0.36	1.00	0.71	0.63
	24	1.00	1.00	0.85	1.00	0.83	0.70	1.00	0.88	0.41	1.00	0.73	0.64
	26	1.00	1.00	0.90	1.00	0.86	0.72	1.00	1.00	0.46	1.00	0.75	0.65
	28	1.00	1.00	0.95	1.00	0.89	0.73	1.00	1.00	0.52	1.00	0.77	0.66
	30	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.57	1.00	0.79	0.67
	32	1.00	1.00	1.00	1.00	0.94	0.77	1.00	1.00	0.63	1.00	0.81	0.69
	34	1.00	1.00	1.00	1.00	0.97	0.78	1.00	1.00	0.69	1.00	0.83	0.70
	36	1.00	1.00	1.00	1.00	1.00	0.80	1.00	1.00	0.75	1.00	0.85	0.71

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

US Fractional Rebar #10 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15	25	5	15	25	5	15	25	5	15	25
	mm	127	381	635	127	381	635	127	381	635	127	381	635
Spacing (S) Edge Distance (C_a)	2 3/4	0.24	0.18	0.17	0.59	0.53	0.52	0.12	0.03	0.01	0.57	0.52	0.51
	3 1/8	0.25	0.18	0.17	0.60	0.53	0.52	0.15	0.03	0.02	0.57	0.52	0.51
	6 1/4	0.37	0.21	0.19	0.71	0.57	0.54	0.42	0.09	0.04	0.65	0.55	0.53
	7	0.41	0.22	0.19	0.73	0.58	0.55	0.50	0.11	0.05	0.67	0.56	0.53
	8	0.46	0.23	0.20	0.77	0.59	0.55	0.61	0.14	0.06	0.69	0.56	0.54
	9	0.51	0.25	0.21	0.80	0.60	0.56	0.73	0.16	0.08	0.71	0.57	0.54
	10	0.57	0.26	0.21	0.83	0.61	0.57	0.86	0.19	0.09	0.74	0.58	0.55
	11	0.63	0.27	0.22	0.87	0.62	0.57	0.99	0.22	0.10	0.76	0.59	0.55
	12	0.69	0.28	0.23	0.90	0.63	0.58	1.00	0.25	0.12	0.78	0.59	0.56
	14	0.80	0.31	0.24	0.97	0.66	0.59	1.00	0.31	0.15	0.83	0.61	0.57
	16	0.91	0.33	0.25	1.00	0.68	0.61	1.00	0.38	0.18	0.88	0.63	0.58
	18	1.00	0.36	0.27	1.00	0.70	0.62	1.00	0.46	0.21	0.93	0.64	0.59
	20	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.54	0.25	0.97	0.66	0.59
	22	1.00	0.42	0.30	1.00	0.74	0.65	1.00	0.62	0.29	1.00	0.67	0.60
	24	1.00	0.46	0.31	1.00	0.77	0.66	1.00	0.71	0.33	1.00	0.69	0.61
	26	1.00	0.50	0.33	1.00	0.79	0.67	1.00	0.80	0.37	1.00	0.71	0.62
	30	1.00	0.57	0.36	1.00	0.83	0.70	1.00	0.99	0.46	1.00	0.74	0.64
	32	1.00	0.61	0.38	1.00	0.86	0.71	1.00	1.00	0.51	1.00	0.75	0.65
	34	1.00	0.65	0.40	1.00	0.88	0.73	1.00	1.00	0.55	1.00	0.77	0.66
	36	1.00	0.69	0.41	1.00	0.90	0.74	1.00	1.00	0.60	1.00	0.78	0.67
	38	1.00	0.72	0.43	1.00	0.92	0.75	1.00	1.00	0.65	1.00	0.80	0.68
	40	1.00	0.76	0.46	1.00	0.94	0.77	1.00	1.00	0.71	1.00	0.82	0.69

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
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Sika AnchorFix®-3030

US Fractional Rebar #10 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15	25	5	15	25	5	15	25	5	15	25
	mm	127	381	635	127	381	635	127	381	635	127	381	635
Spacing (S) Edge Distance (C_a)	2 3/4	0.55	0.41	0.39	0.59	0.53	0.52	0.12	0.03	0.01	0.57	0.52	0.51
	3 1/8	0.58	0.42	0.39	0.60	0.53	0.52	0.15	0.03	0.02	0.57	0.52	0.51
	6 1/4	0.87	0.50	0.44	0.71	0.57	0.54	0.42	0.09	0.04	0.65	0.55	0.53
	7	0.95	0.52	0.45	0.73	0.58	0.55	0.50	0.11	0.05	0.67	0.56	0.53
	8	1.00	0.55	0.46	0.77	0.59	0.55	0.61	0.14	0.06	0.69	0.56	0.54
	9	1.00	0.57	0.48	0.80	0.60	0.56	0.73	0.16	0.08	0.71	0.57	0.54
	10	1.00	0.60	0.49	0.83	0.61	0.57	0.86	0.19	0.09	0.74	0.58	0.55
	11	1.00	0.63	0.51	0.87	0.62	0.57	0.99	0.22	0.10	0.76	0.59	0.55
	12	1.00	0.66	0.53	0.90	0.63	0.58	1.00	0.25	0.12	0.78	0.59	0.56
	14	1.00	0.72	0.56	0.97	0.66	0.59	1.00	0.31	0.15	0.83	0.61	0.57
	16	1.00	0.78	0.59	1.00	0.68	0.61	1.00	0.38	0.18	0.88	0.63	0.58
	18	1.00	0.85	0.62	1.00	0.70	0.62	1.00	0.46	0.21	0.93	0.64	0.59
	20	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.54	0.25	0.97	0.66	0.59
	22	1.00	0.98	0.69	1.00	0.74	0.65	1.00	0.62	0.29	1.00	0.67	0.60
	24	1.00	1.00	0.73	1.00	0.77	0.66	1.00	0.71	0.33	1.00	0.69	0.61
	26	1.00	1.00	0.77	1.00	0.79	0.67	1.00	0.80	0.37	1.00	0.71	0.62
	30	1.00	1.00	0.85	1.00	0.83	0.70	1.00	0.99	0.46	1.00	0.74	0.64
	32	1.00	1.00	0.89	1.00	0.86	0.71	1.00	1.00	0.51	1.00	0.75	0.65
	34	1.00	1.00	0.93	1.00	0.88	0.73	1.00	1.00	0.55	1.00	0.77	0.66
	36	1.00	1.00	0.97	1.00	0.90	0.74	1.00	1.00	0.60	1.00	0.78	0.67
	38	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.65	1.00	0.80	0.68
	40	1.00	1.00	1.00	1.00	0.94	0.77	1.00	1.00	0.71	1.00	0.82	0.69

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Metric Threaded Rod

Metric Threaded Rod M10 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8
	mm	60	130	200	60	130	200	60	130	200	60	130	200
Spacing (S) Edge Distance (C_a)	1 1/2	0.25	0.19	0.18	0.61	0.55	0.53	0.19	0.03	0.02	0.54	0.52	0.51
	1 7/8	0.28	0.21	0.19	0.63	0.56	0.54	0.26	0.04	0.02	0.55	0.52	0.52
	2	0.29	0.21	0.19	0.64	0.57	0.54	0.29	0.05	0.02	0.56	0.53	0.52
	3	0.38	0.24	0.21	0.71	0.60	0.56	0.53	0.09	0.05	0.59	0.54	0.53
	3 1/2	0.42	0.26	0.22	0.75	0.61	0.57	0.67	0.11	0.06	0.60	0.55	0.53
	4	0.48	0.28	0.23	0.78	0.63	0.58	0.81	0.13	0.07	0.61	0.55	0.53
	4 1/2	0.54	0.30	0.24	0.82	0.65	0.60	0.97	0.16	0.08	0.63	0.56	0.54
	5	0.61	0.32	0.25	0.85	0.66	0.61	1.00	0.19	0.10	0.64	0.57	0.54
	5 1/2	0.67	0.34	0.26	0.89	0.68	0.62	1.00	0.22	0.11	0.66	0.57	0.55
	6	0.73	0.36	0.28	0.92	0.70	0.63	1.00	0.25	0.13	0.67	0.58	0.55
	7	0.85	0.40	0.30	0.99	0.73	0.65	1.00	0.31	0.16	0.70	0.59	0.56
	8	0.97	0.45	0.32	1.00	0.76	0.67	1.00	0.38	0.20	0.73	0.60	0.57
	9	1.00	0.50	0.35	1.00	0.79	0.69	1.00	0.45	0.24	0.76	0.62	0.58
	10	1.00	0.56	0.38	1.00	0.83	0.71	1.00	0.53	0.28	0.78	0.63	0.59
	11	1.00	0.61	0.41	1.00	0.86	0.73	1.00	0.61	0.32	0.81	0.64	0.59
	12	1.00	0.67	0.44	1.00	0.89	0.75	1.00	0.70	0.37	0.84	0.66	0.60
	13	1.00	0.73	0.47	1.00	0.92	0.78	1.00	0.79	0.41	0.87	0.67	0.61
	14	1.00	0.78	0.51	1.00	0.96	0.80	1.00	0.88	0.46	0.90	0.68	0.62
	16	1.00	0.89	0.58	1.00	1.00	0.84	1.00	1.00	0.56	0.95	0.71	0.64
	18	1.00	1.00	0.65	1.00	1.00	0.88	1.00	1.00	0.67	1.00	0.74	0.65
	20	1.00	1.00	0.73	1.00	1.00	0.92	1.00	1.00	0.79	1.00	0.76	0.67
	24	1.00	1.00	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.70

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Sika AnchorFix®-3030

Metric Threaded Rod M10 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8
	mm	60	130	200	60	130	200	60	130	200	60	130	200
Spacing (S) Edge Distance (C_a)	1 1/2	0.59	0.45	0.42	0.61	0.55	0.53	0.19	0.03	0.02	0.54	0.52	0.51
	1 7/8	0.66	0.48	0.43	0.63	0.56	0.54	0.26	0.04	0.02	0.55	0.52	0.52
	2	0.68	0.49	0.44	0.64	0.57	0.54	0.29	0.05	0.02	0.56	0.53	0.52
	3	0.88	0.57	0.49	0.71	0.60	0.56	0.53	0.09	0.05	0.59	0.54	0.53
	3 1/2	0.99	0.61	0.51	0.75	0.61	0.57	0.67	0.11	0.06	0.60	0.55	0.53
	4	1.00	0.65	0.54	0.78	0.63	0.58	0.81	0.13	0.07	0.61	0.55	0.53
	4 1/2	1.00	0.69	0.56	0.82	0.65	0.60	0.97	0.16	0.08	0.63	0.56	0.54
	5	1.00	0.74	0.59	0.85	0.66	0.61	1.00	0.19	0.10	0.64	0.57	0.54
	5 1/2	1.00	0.79	0.62	0.89	0.68	0.62	1.00	0.22	0.11	0.66	0.57	0.55
	6	1.00	0.83	0.64	0.92	0.70	0.63	1.00	0.25	0.13	0.67	0.58	0.55
	7	1.00	0.93	0.70	0.99	0.73	0.65	1.00	0.31	0.16	0.70	0.59	0.56
	8	1.00	1.00	0.76	1.00	0.76	0.67	1.00	0.38	0.20	0.73	0.60	0.57
	9	1.00	1.00	0.82	1.00	0.79	0.69	1.00	0.45	0.24	0.76	0.62	0.58
	10	1.00	1.00	0.88	1.00	0.83	0.71	1.00	0.53	0.28	0.78	0.63	0.59
	11	1.00	1.00	0.95	1.00	0.86	0.73	1.00	0.61	0.32	0.81	0.64	0.59
	12	1.00	1.00	1.00	1.00	0.89	0.75	1.00	0.70	0.37	0.84	0.66	0.60
	13	1.00	1.00	1.00	1.00	0.92	0.78	1.00	0.79	0.41	0.87	0.67	0.61
	14	1.00	1.00	1.00	1.00	0.96	0.80	1.00	0.88	0.46	0.90	0.68	0.62
	16	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.56	0.95	0.71	0.64
	18	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.67	1.00	0.74	0.65
	20	1.00	1.00	1.00	1.00	1.00	0.92	1.00	1.00	0.79	1.00	0.76	0.67
	24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.70

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M12 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9
	mm	70	155	240	70	155	240	70	155	240	70	155	240
Spacing (S) Edge Distance (C_a)	1 1/2	0.24	0.19	0.17	0.59	0.54	0.53	0.08	0.03	0.01	0.54	0.52	0.51
	2	0.27	0.20	0.18	0.62	0.55	0.54	0.12	0.04	0.02	0.55	0.52	0.51
	3	0.34	0.23	0.20	0.68	0.58	0.55	0.23	0.07	0.04	0.57	0.53	0.52
	3 1/2	0.38	0.24	0.21	0.71	0.60	0.56	0.29	0.09	0.05	0.59	0.54	0.53
	4	0.42	0.26	0.22	0.74	0.61	0.57	0.35	0.11	0.06	0.60	0.54	0.53
	4 1/2	0.47	0.27	0.22	0.77	0.62	0.58	0.42	0.14	0.07	0.61	0.55	0.53
	5	0.52	0.29	0.23	0.80	0.64	0.59	0.49	0.16	0.08	0.62	0.56	0.54
	5 1/2	0.57	0.30	0.24	0.83	0.65	0.60	0.57	0.18	0.10	0.64	0.56	0.54
	6	0.62	0.32	0.25	0.86	0.66	0.61	0.65	0.21	0.11	0.65	0.57	0.54
	6 1/2	0.67	0.33	0.26	0.89	0.68	0.61	0.73	0.24	0.12	0.66	0.57	0.55
	7	0.73	0.35	0.27	0.92	0.69	0.62	0.81	0.26	0.14	0.67	0.58	0.55
	8	0.83	0.39	0.29	0.98	0.72	0.64	0.99	0.32	0.17	0.70	0.59	0.56
	9	0.93	0.42	0.31	1.00	0.75	0.66	1.00	0.38	0.20	0.72	0.60	0.57
	10	1.00	0.47	0.33	1.00	0.77	0.68	1.00	0.45	0.23	0.75	0.61	0.57
	11	1.00	0.52	0.36	1.00	0.80	0.69	1.00	0.52	0.27	0.77	0.62	0.58
	12	1.00	0.56	0.38	1.00	0.83	0.71	1.00	0.59	0.31	0.80	0.63	0.59
	14	1.00	0.66	0.42	1.00	0.88	0.75	1.00	0.74	0.39	0.85	0.66	0.60
	16	1.00	0.75	0.48	1.00	0.94	0.78	1.00	0.91	0.47	0.90	0.68	0.62
	18	1.00	0.84	0.54	1.00	0.99	0.82	1.00	1.00	0.56	0.95	0.70	0.63
	20	1.00	0.94	0.60	1.00	1.00	0.85	1.00	1.00	0.66	1.00	0.72	0.65
	24	1.00	1.00	0.73	1.00	1.00	0.92	1.00	1.00	0.87	1.00	0.77	0.67

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M12 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9	2 3/4	6 1/9	9 4/9
	mm	70	155	240	70	155	240	70	155	240	70	155	240
Spacing (S) Edge Distance (C_a)	1 1/2	0.55	0.44	0.40	0.59	0.54	0.53	0.08	0.03	0.01	0.54	0.52	0.51
	2	0.63	0.47	0.42	0.62	0.55	0.54	0.12	0.04	0.02	0.55	0.52	0.51
	3	0.79	0.53	0.46	0.68	0.58	0.55	0.23	0.07	0.04	0.57	0.53	0.52
	3 1/2	0.88	0.56	0.48	0.71	0.60	0.56	0.29	0.09	0.05	0.59	0.54	0.53
	4	0.97	0.60	0.50	0.74	0.61	0.57	0.35	0.11	0.06	0.60	0.54	0.53
	4 1/2	1.00	0.63	0.52	0.77	0.62	0.58	0.42	0.14	0.07	0.61	0.55	0.53
	5	1.00	0.67	0.55	0.80	0.64	0.59	0.49	0.16	0.08	0.62	0.56	0.54
	5 1/2	1.00	0.70	0.57	0.83	0.65	0.60	0.57	0.18	0.10	0.64	0.56	0.54
	6	1.00	0.74	0.59	0.86	0.66	0.61	0.65	0.21	0.11	0.65	0.57	0.54
	6 1/2	1.00	0.78	0.61	0.89	0.68	0.61	0.73	0.24	0.12	0.66	0.57	0.55
	7	1.00	0.82	0.63	0.92	0.69	0.62	0.81	0.26	0.14	0.67	0.58	0.55
	8	1.00	0.90	0.68	0.98	0.72	0.64	0.99	0.32	0.17	0.70	0.59	0.56
	9	1.00	0.99	0.73	1.00	0.75	0.66	1.00	0.38	0.20	0.72	0.60	0.57
	10	1.00	1.00	0.78	1.00	0.77	0.68	1.00	0.45	0.23	0.75	0.61	0.57
	11	1.00	1.00	0.83	1.00	0.80	0.69	1.00	0.52	0.27	0.77	0.62	0.58
	12	1.00	1.00	0.88	1.00	0.83	0.71	1.00	0.59	0.31	0.80	0.63	0.59
	14	1.00	1.00	0.99	1.00	0.88	0.75	1.00	0.74	0.39	0.85	0.66	0.60
	16	1.00	1.00	1.00	1.00	0.94	0.78	1.00	0.91	0.47	0.90	0.68	0.62
	18	1.00	1.00	1.00	1.00	0.99	0.82	1.00	1.00	0.56	0.95	0.70	0.63
	20	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.66	1.00	0.72	0.65
	24	1.00	1.00	1.00	1.00	1.00	0.92	1.00	1.00	0.87	1.00	0.77	0.67

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[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M16 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5
	mm	80	200	320	80	200	320	80	200	320	80	200	320
Spacing (S) Edge Distance (C_a)	1 3/4	0.24	0.18	0.17	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	2	0.25	0.19	0.17	0.61	0.54	0.53	0.11	0.03	0.02	0.54	0.52	0.51
	3 3/4	0.36	0.22	0.20	0.70	0.58	0.55	0.29	0.08	0.04	0.58	0.53	0.52
	4	0.38	0.23	0.20	0.71	0.58	0.55	0.32	0.09	0.04	0.59	0.54	0.52
	5	0.45	0.25	0.21	0.76	0.61	0.57	0.45	0.13	0.06	0.61	0.54	0.53
	5 1/2	0.50	0.26	0.22	0.79	0.62	0.57	0.52	0.14	0.07	0.62	0.55	0.53
	6	0.54	0.28	0.22	0.82	0.63	0.58	0.59	0.16	0.08	0.63	0.55	0.53
	7	0.64	0.30	0.24	0.87	0.65	0.59	0.75	0.21	0.10	0.66	0.56	0.54
	7 3/8	0.67	0.31	0.24	0.89	0.66	0.60	0.81	0.22	0.11	0.66	0.57	0.54
	8	0.73	0.32	0.25	0.92	0.67	0.61	0.91	0.25	0.13	0.68	0.57	0.54
	9	0.82	0.35	0.27	0.98	0.69	0.62	1.00	0.30	0.15	0.70	0.58	0.55
	9 1/4	0.84	0.36	0.27	0.99	0.70	0.62	1.00	0.32	0.16	0.71	0.58	0.55
	10	0.91	0.38	0.28	1.00	0.71	0.63	1.00	0.35	0.18	0.72	0.59	0.56
	11	1.00	0.41	0.30	1.00	0.73	0.65	1.00	0.41	0.20	0.75	0.60	0.56
	12	1.00	0.44	0.31	1.00	0.75	0.66	1.00	0.47	0.23	0.77	0.61	0.57
	14	1.00	0.51	0.34	1.00	0.80	0.69	1.00	0.59	0.29	0.81	0.62	0.58
	16	1.00	0.58	0.38	1.00	0.84	0.71	1.00	0.72	0.35	0.86	0.64	0.59
	18	1.00	0.65	0.41	1.00	0.88	0.74	1.00	0.86	0.42	0.90	0.66	0.60
	20	1.00	0.73	0.45	1.00	0.92	0.76	1.00	1.00	0.50	0.95	0.68	0.61
	22	1.00	0.80	0.50	1.00	0.97	0.79	1.00	1.00	0.57	0.99	0.70	0.62
	26	1.00	0.94	0.59	1.00	1.00	0.84	1.00	1.00	0.73	1.00	0.73	0.65
	30	1.00	1.00	0.68	1.00	1.00	0.90	1.00	1.00	0.91	1.00	0.77	0.67

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
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Sika AnchorFix®-3030

Metric Threaded Rod M16 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5
	mm	80	200	320	80	200	320	80	200	320	80	200	320
Spacing (S) Edge Distance (C_a)	1 3/4	0.56	0.43	0.40	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	2	0.59	0.44	0.40	0.61	0.54	0.53	0.11	0.03	0.02	0.54	0.52	0.51
	3 3/4	0.84	0.52	0.46	0.70	0.58	0.55	0.29	0.08	0.04	0.58	0.53	0.52
	4	0.88	0.54	0.46	0.71	0.58	0.55	0.32	0.09	0.04	0.59	0.54	0.52
	5	1.00	0.59	0.49	0.76	0.61	0.57	0.45	0.13	0.06	0.61	0.54	0.53
	5 1/2	1.00	0.62	0.51	0.79	0.62	0.57	0.52	0.14	0.07	0.62	0.55	0.53
	6	1.00	0.64	0.52	0.82	0.63	0.58	0.59	0.16	0.08	0.63	0.55	0.53
	7	1.00	0.70	0.56	0.87	0.65	0.59	0.75	0.21	0.10	0.66	0.56	0.54
	7 3/8	1.00	0.72	0.57	0.89	0.66	0.60	0.81	0.22	0.11	0.66	0.57	0.54
	8	1.00	0.76	0.59	0.92	0.67	0.61	0.91	0.25	0.13	0.68	0.57	0.54
	9	1.00	0.82	0.62	0.98	0.69	0.62	1.00	0.30	0.15	0.70	0.58	0.55
	9 1/4	1.00	0.83	0.63	0.99	0.70	0.62	1.00	0.32	0.16	0.71	0.58	0.55
	10	1.00	0.88	0.66	1.00	0.71	0.63	1.00	0.35	0.18	0.72	0.59	0.56
	11	1.00	0.95	0.69	1.00	0.73	0.65	1.00	0.41	0.20	0.75	0.60	0.56
	12	1.00	1.00	0.73	1.00	0.75	0.66	1.00	0.47	0.23	0.77	0.61	0.57
	14	1.00	1.00	0.80	1.00	0.80	0.69	1.00	0.59	0.29	0.81	0.62	0.58
	16	1.00	1.00	0.88	1.00	0.84	0.71	1.00	0.72	0.35	0.86	0.64	0.59
	18	1.00	1.00	0.96	1.00	0.88	0.74	1.00	0.86	0.42	0.90	0.66	0.60
	20	1.00	1.00	1.00	1.00	0.92	0.76	1.00	1.00	0.50	0.95	0.68	0.61
	22	1.00	1.00	1.00	1.00	0.97	0.79	1.00	1.00	0.57	0.99	0.70	0.62
	26	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.73	1.00	0.73	0.65
	30	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.91	1.00	0.77	0.67

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M20 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4
	mm	90	245	400	90	245	400	90	245	400	90	245	400
Spacing (S) Edge Distance (C_a)	1 7/8	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	2	0.24	0.18	0.17	0.59	0.53	0.52	0.10	0.03	0.01	0.54	0.51	0.51
	2 1/2	0.27	0.19	0.17	0.62	0.54	0.53	0.15	0.04	0.02	0.55	0.52	0.51
	3 1/2	0.32	0.21	0.18	0.66	0.56	0.54	0.24	0.06	0.03	0.57	0.53	0.52
	4	0.35	0.21	0.19	0.69	0.57	0.54	0.30	0.07	0.04	0.58	0.53	0.52
	4 1/2	0.38	0.22	0.19	0.71	0.58	0.55	0.35	0.09	0.04	0.59	0.53	0.52
	5	0.41	0.23	0.20	0.74	0.59	0.55	0.41	0.10	0.05	0.60	0.54	0.52
	6	0.48	0.25	0.21	0.78	0.60	0.56	0.54	0.14	0.07	0.62	0.54	0.53
	7	0.56	0.27	0.22	0.83	0.62	0.57	0.69	0.17	0.08	0.64	0.55	0.53
	8	0.65	0.29	0.23	0.88	0.64	0.58	0.84	0.21	0.10	0.66	0.56	0.54
	9	0.73	0.31	0.24	0.92	0.66	0.60	1.00	0.25	0.12	0.68	0.57	0.54
	10	0.81	0.33	0.25	0.97	0.67	0.61	1.00	0.29	0.14	0.70	0.57	0.55
	12	0.97	0.37	0.28	1.00	0.71	0.63	1.00	0.38	0.18	0.74	0.59	0.55
	14	1.00	0.42	0.30	1.00	0.74	0.65	1.00	0.49	0.23	0.78	0.60	0.56
	16	1.00	0.47	0.32	1.00	0.78	0.67	1.00	0.59	0.28	0.83	0.62	0.57
	18	1.00	0.53	0.35	1.00	0.81	0.69	1.00	0.71	0.34	0.87	0.63	0.58
	20	1.00	0.59	0.38	1.00	0.85	0.71	1.00	0.83	0.40	0.91	0.65	0.59
	22	1.00	0.65	0.41	1.00	0.88	0.73	1.00	0.96	0.46	0.95	0.66	0.60
	24	1.00	0.71	0.44	1.00	0.91	0.75	1.00	1.00	0.52	0.99	0.68	0.61
	26	1.00	0.77	0.47	1.00	0.95	0.78	1.00	1.00	0.59	1.00	0.69	0.62
	28	1.00	0.83	0.51	1.00	0.98	0.80	1.00	1.00	0.66	1.00	0.71	0.63
	30	1.00	0.89	0.54	1.00	1.00	0.82	1.00	1.00	0.73	1.00	0.72	0.64

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[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M20 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4	3 1/2	9 2/3	15 3/4
	mm	90	245	400	90	245	400	90	245	400	90	245	400
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.42	0.39	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	2	0.56	0.42	0.39	0.59	0.53	0.52	0.10	0.03	0.01	0.54	0.51	0.51
	2 1/2	0.62	0.44	0.40	0.62	0.54	0.53	0.15	0.04	0.02	0.55	0.52	0.51
	3 1/2	0.74	0.48	0.43	0.66	0.56	0.54	0.24	0.06	0.03	0.57	0.53	0.52
	4	0.81	0.50	0.44	0.69	0.57	0.54	0.30	0.07	0.04	0.58	0.53	0.52
	4 1/2	0.88	0.52	0.45	0.71	0.58	0.55	0.35	0.09	0.04	0.59	0.53	0.52
	5	0.95	0.54	0.46	0.74	0.59	0.55	0.41	0.10	0.05	0.60	0.54	0.52
	6	1.00	0.58	0.49	0.78	0.60	0.56	0.54	0.14	0.07	0.62	0.54	0.53
	7	1.00	0.63	0.51	0.83	0.62	0.57	0.69	0.17	0.08	0.64	0.55	0.53
	8	1.00	0.67	0.54	0.88	0.64	0.58	0.84	0.21	0.10	0.66	0.56	0.54
	9	1.00	0.72	0.56	0.92	0.66	0.60	1.00	0.25	0.12	0.68	0.57	0.54
	10	1.00	0.77	0.59	0.97	0.67	0.61	1.00	0.29	0.14	0.70	0.57	0.55
	12	1.00	0.87	0.64	1.00	0.71	0.63	1.00	0.38	0.18	0.74	0.59	0.55
	14	1.00	0.97	0.70	1.00	0.74	0.65	1.00	0.49	0.23	0.78	0.60	0.56
	16	1.00	1.00	0.76	1.00	0.78	0.67	1.00	0.59	0.28	0.83	0.62	0.57
	18	1.00	1.00	0.82	1.00	0.81	0.69	1.00	0.71	0.34	0.87	0.63	0.58
	20	1.00	1.00	0.88	1.00	0.85	0.71	1.00	0.83	0.40	0.91	0.65	0.59
	22	1.00	1.00	0.95	1.00	0.88	0.73	1.00	0.96	0.46	0.95	0.66	0.60
	24	1.00	1.00	1.00	1.00	0.91	0.75	1.00	1.00	0.52	0.99	0.68	0.61
	26	1.00	1.00	1.00	1.00	0.95	0.78	1.00	1.00	0.59	1.00	0.69	0.62
	28	1.00	1.00	1.00	1.00	0.98	0.80	1.00	1.00	0.66	1.00	0.71	0.63
	30	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	0.73	1.00	0.72	0.64

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M24 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9
	mm	96	288	480	96	288	480	96	288	480	96	288	480
Spacing (S) Edge Distance (C_a)	2	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	3	0.28	0.19	0.17	0.63	0.54	0.53	0.19	0.04	0.02	0.56	0.52	0.51
	3 1/2	0.31	0.20	0.18	0.65	0.55	0.53	0.23	0.05	0.02	0.57	0.52	0.51
	4	0.33	0.20	0.18	0.68	0.56	0.54	0.29	0.06	0.03	0.58	0.53	0.52
	4 1/2	0.36	0.21	0.19	0.70	0.57	0.54	0.34	0.08	0.04	0.59	0.53	0.52
	5	0.39	0.22	0.19	0.72	0.57	0.54	0.40	0.09	0.04	0.60	0.53	0.52
	6	0.45	0.23	0.20	0.76	0.59	0.55	0.53	0.12	0.05	0.62	0.54	0.52
	7	0.53	0.25	0.21	0.81	0.60	0.56	0.66	0.15	0.07	0.64	0.55	0.53
	8	0.60	0.27	0.22	0.85	0.62	0.57	0.81	0.18	0.08	0.66	0.55	0.53
	9	0.68	0.28	0.22	0.90	0.63	0.58	0.97	0.21	0.10	0.68	0.56	0.54
	10	0.76	0.30	0.23	0.94	0.65	0.59	1.00	0.25	0.12	0.70	0.57	0.54
	11	0.83	0.32	0.24	0.99	0.66	0.60	1.00	0.29	0.13	0.72	0.57	0.54
	12	0.91	0.33	0.25	1.00	0.68	0.61	1.00	0.33	0.15	0.74	0.58	0.55
	13	0.98	0.35	0.26	1.00	0.69	0.61	1.00	0.37	0.17	0.76	0.59	0.55
	14	1.00	0.37	0.27	1.00	0.71	0.62	1.00	0.42	0.19	0.77	0.59	0.55
	16	1.00	0.41	0.29	1.00	0.74	0.64	1.00	0.51	0.24	0.81	0.60	0.56
	18	1.00	0.45	0.31	1.00	0.76	0.66	1.00	0.61	0.28	0.85	0.62	0.57
	20	1.00	0.50	0.33	1.00	0.79	0.68	1.00	0.71	0.33	0.89	0.63	0.58
	22	1.00	0.55	0.36	1.00	0.82	0.69	1.00	0.82	0.38	0.93	0.64	0.59
	24	1.00	0.60	0.38	1.00	0.85	0.71	1.00	0.93	0.43	0.97	0.66	0.59
	26	1.00	0.66	0.40	1.00	0.88	0.73	1.00	1.00	0.49	1.00	0.67	0.60
	30	1.00	0.76	0.45	1.00	0.94	0.76	1.00	1.00	0.61	1.00	0.70	0.62

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M24 – Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9	3 7/9	11 1/3	18 8/9
	mm	96	288	480	96	288	480	96	288	480	96	288	480
Spacing (S) Edge Distance (C_a)	2	0.55	0.41	0.39	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	3	0.66	0.44	0.40	0.63	0.54	0.53	0.19	0.04	0.02	0.56	0.52	0.51
	3 1/2	0.72	0.46	0.41	0.65	0.55	0.53	0.23	0.05	0.02	0.57	0.52	0.51
	4	0.78	0.48	0.42	0.68	0.56	0.54	0.29	0.06	0.03	0.58	0.53	0.52
	4 1/2	0.84	0.49	0.43	0.70	0.57	0.54	0.34	0.08	0.04	0.59	0.53	0.52
	5	0.91	0.51	0.44	0.72	0.57	0.54	0.40	0.09	0.04	0.60	0.53	0.52
	6	1.00	0.55	0.46	0.76	0.59	0.55	0.53	0.12	0.05	0.62	0.54	0.52
	7	1.00	0.58	0.48	0.81	0.60	0.56	0.66	0.15	0.07	0.64	0.55	0.53
	8	1.00	0.62	0.50	0.85	0.62	0.57	0.81	0.18	0.08	0.66	0.55	0.53
	9	1.00	0.66	0.52	0.90	0.63	0.58	0.97	0.21	0.10	0.68	0.56	0.54
	10	1.00	0.70	0.55	0.94	0.65	0.59	1.00	0.25	0.12	0.70	0.57	0.54
	11	1.00	0.74	0.57	0.99	0.66	0.60	1.00	0.29	0.13	0.72	0.57	0.54
	12	1.00	0.78	0.59	1.00	0.68	0.61	1.00	0.33	0.15	0.74	0.58	0.55
	13	1.00	0.82	0.61	1.00	0.69	0.61	1.00	0.37	0.17	0.76	0.59	0.55
	14	1.00	0.86	0.63	1.00	0.71	0.62	1.00	0.42	0.19	0.77	0.59	0.55
	16	1.00	0.95	0.68	1.00	0.74	0.64	1.00	0.51	0.24	0.81	0.60	0.56
	18	1.00	1.00	0.73	1.00	0.76	0.66	1.00	0.61	0.28	0.85	0.62	0.57
	20	1.00	1.00	0.78	1.00	0.79	0.68	1.00	0.71	0.33	0.89	0.63	0.58
	22	1.00	1.00	0.83	1.00	0.82	0.69	1.00	0.82	0.38	0.93	0.64	0.59
	24	1.00	1.00	0.88	1.00	0.85	0.71	1.00	0.93	0.43	0.97	0.66	0.59
	26	1.00	1.00	0.93	1.00	0.88	0.73	1.00	1.00	0.49	1.00	0.67	0.60
	30	1.00	1.00	1.00	1.00	0.94	0.76	1.00	1.00	0.61	1.00	0.70	0.62

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Sika AnchorFix®-3030

Metric Threaded Rod M27 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4
	mm	108	324	540	108	324	540	108	324	540	108	324	540
Spacing (S) Edge Distance (C_a)	2 1/2	0.24	0.18	0.17	0.60	0.53	0.52	0.13	0.03	0.01	0.54	0.51	0.51
	3	0.27	0.19	0.17	0.62	0.54	0.52	0.17	0.04	0.02	0.55	0.52	0.51
	4	0.31	0.20	0.18	0.66	0.55	0.53	0.26	0.06	0.03	0.57	0.52	0.51
	5	0.36	0.21	0.19	0.70	0.57	0.54	0.36	0.08	0.04	0.59	0.53	0.52
	6	0.41	0.22	0.19	0.74	0.58	0.55	0.47	0.10	0.05	0.61	0.54	0.52
	7	0.47	0.24	0.20	0.77	0.59	0.55	0.59	0.13	0.06	0.63	0.54	0.53
	8	0.54	0.25	0.21	0.81	0.60	0.56	0.72	0.16	0.07	0.64	0.55	0.53
	9	0.60	0.27	0.22	0.85	0.62	0.57	0.86	0.19	0.09	0.66	0.55	0.53
	10	0.67	0.28	0.22	0.89	0.63	0.58	1.00	0.22	0.10	0.68	0.56	0.54
	11	0.74	0.29	0.23	0.93	0.64	0.59	1.00	0.26	0.12	0.70	0.57	0.54
	12	0.81	0.31	0.24	0.97	0.66	0.59	1.00	0.29	0.14	0.72	0.57	0.54
	13	0.87	0.33	0.25	1.00	0.67	0.60	1.00	0.33	0.15	0.73	0.58	0.55
	14	0.94	0.34	0.26	1.00	0.68	0.61	1.00	0.37	0.17	0.75	0.58	0.55
	15	1.00	0.36	0.27	1.00	0.70	0.62	1.00	0.41	0.19	0.77	0.59	0.55
	16	1.00	0.37	0.27	1.00	0.71	0.63	1.00	0.45	0.21	0.79	0.60	0.56
	17	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.49	0.23	0.81	0.60	0.56
	18	1.00	0.41	0.29	1.00	0.74	0.64	1.00	0.54	0.25	0.82	0.61	0.56
	20	1.00	0.45	0.31	1.00	0.76	0.66	1.00	0.63	0.29	0.86	0.62	0.57
	22	1.00	0.49	0.33	1.00	0.79	0.67	1.00	0.73	0.34	0.90	0.63	0.58
	26	1.00	0.58	0.37	1.00	0.84	0.70	1.00	0.93	0.43	0.97	0.66	0.59
	30	1.00	0.67	0.41	1.00	0.89	0.74	1.00	1.00	0.54	1.00	0.68	0.61

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Sika AnchorFix®-3030

Metric Threaded Rod M27 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4	4 1/4	12 3/4	21 1/4
	mm	108	324	540	108	324	540	108	324	540	108	324	540
Spacing (S) Edge Distance (C_a)	2 1/2	0.57	0.42	0.39	0.60	0.53	0.52	0.13	0.03	0.01	0.54	0.51	0.51
	3	0.62	0.43	0.40	0.62	0.54	0.52	0.17	0.04	0.02	0.55	0.52	0.51
	4	0.72	0.46	0.42	0.66	0.55	0.53	0.26	0.06	0.03	0.57	0.52	0.51
	5	0.83	0.49	0.43	0.70	0.57	0.54	0.36	0.08	0.04	0.59	0.53	0.52
	6	0.95	0.52	0.45	0.74	0.58	0.55	0.47	0.10	0.05	0.61	0.54	0.52
	7	1.00	0.55	0.47	0.77	0.59	0.55	0.59	0.13	0.06	0.63	0.54	0.53
	8	1.00	0.59	0.48	0.81	0.60	0.56	0.72	0.16	0.07	0.64	0.55	0.53
	9	1.00	0.62	0.50	0.85	0.62	0.57	0.86	0.19	0.09	0.66	0.55	0.53
	10	1.00	0.65	0.52	0.89	0.63	0.58	1.00	0.22	0.10	0.68	0.56	0.54
	11	1.00	0.69	0.54	0.93	0.64	0.59	1.00	0.26	0.12	0.70	0.57	0.54
	12	1.00	0.72	0.56	0.97	0.66	0.59	1.00	0.29	0.14	0.72	0.57	0.54
	13	1.00	0.76	0.58	1.00	0.67	0.60	1.00	0.33	0.15	0.73	0.58	0.55
	14	1.00	0.80	0.60	1.00	0.68	0.61	1.00	0.37	0.17	0.75	0.58	0.55
	15	1.00	0.83	0.62	1.00	0.70	0.62	1.00	0.41	0.19	0.77	0.59	0.55
	16	1.00	0.87	0.64	1.00	0.71	0.63	1.00	0.45	0.21	0.79	0.60	0.56
	17	1.00	0.91	0.66	1.00	0.72	0.63	1.00	0.49	0.23	0.81	0.60	0.56
	18	1.00	0.95	0.68	1.00	0.74	0.64	1.00	0.54	0.25	0.82	0.61	0.56
	20	1.00	1.00	0.72	1.00	0.76	0.66	1.00	0.63	0.29	0.86	0.62	0.57
	22	1.00	1.00	0.77	1.00	0.79	0.67	1.00	0.73	0.34	0.90	0.63	0.58
	26	1.00	1.00	0.86	1.00	0.84	0.70	1.00	0.93	0.43	0.97	0.66	0.59
	30	1.00	1.00	0.95	1.00	0.89	0.74	1.00	1.00	0.54	1.00	0.68	0.61

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M30 - Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8
	mm	120	360	600	120	360	600	120	360	600	120	360	600
Spacing (S) Edge Distance (C_a)	2 1/2	0.23	0.18	0.17	0.59	0.53	0.52	0.11	0.03	0.01	0.54	0.51	0.51
	3 1/8	0.26	0.18	0.17	0.61	0.54	0.52	0.16	0.04	0.02	0.55	0.52	0.51
	6 1/4	0.39	0.22	0.19	0.72	0.57	0.54	0.45	0.10	0.05	0.61	0.54	0.52
	7	0.42	0.23	0.19	0.75	0.58	0.55	0.53	0.12	0.05	0.62	0.54	0.52
	8	0.48	0.24	0.20	0.78	0.59	0.56	0.65	0.14	0.07	0.64	0.55	0.53
	9	0.54	0.25	0.21	0.82	0.61	0.56	0.78	0.17	0.08	0.66	0.55	0.53
	10	0.60	0.27	0.22	0.85	0.62	0.57	0.91	0.20	0.09	0.67	0.56	0.53
	11	0.67	0.28	0.22	0.89	0.63	0.58	1.00	0.23	0.11	0.69	0.56	0.54
	12	0.73	0.29	0.23	0.92	0.64	0.58	1.00	0.26	0.12	0.71	0.57	0.54
	13	0.79	0.31	0.24	0.96	0.65	0.59	1.00	0.30	0.14	0.72	0.57	0.54
	14	0.85	0.32	0.24	0.99	0.66	0.60	1.00	0.33	0.15	0.74	0.58	0.55
	15	0.91	0.33	0.25	1.00	0.68	0.61	1.00	0.37	0.17	0.76	0.59	0.55
	16	0.97	0.35	0.26	1.00	0.69	0.61	1.00	0.41	0.19	0.78	0.59	0.56
	17	1.00	0.36	0.27	1.00	0.70	0.62	1.00	0.45	0.21	0.79	0.60	0.56
	18	1.00	0.38	0.28	1.00	0.71	0.63	1.00	0.49	0.23	0.81	0.60	0.56
	19	1.00	0.39	0.28	1.00	0.72	0.63	1.00	0.53	0.24	0.83	0.61	0.57
	20	1.00	0.41	0.29	1.00	0.74	0.64	1.00	0.57	0.26	0.85	0.62	0.57
	22	1.00	0.44	0.31	1.00	0.76	0.66	1.00	0.66	0.30	0.88	0.63	0.58
	24	1.00	0.48	0.32	1.00	0.78	0.67	1.00	0.75	0.35	0.92	0.64	0.58
	26	1.00	0.52	0.34	1.00	0.81	0.68	1.00	0.84	0.39	0.95	0.65	0.59
	30	1.00	0.60	0.38	1.00	0.85	0.71	1.00	1.00	0.49	1.00	0.67	0.60
	36	1.00	0.73	0.44	1.00	0.92	0.75	1.00	1.00	0.64	1.00	0.71	0.62

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Threaded Rod M30 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8	4 5/7	14 1/6	23 5/8
	mm	120	360	600	120	360	600	120	360	600	120	360	600
Spacing (S) Edge Distance (C_a)	2 1/2	0.55	0.41	0.39	0.59	0.53	0.52	0.11	0.03	0.01	0.54	0.51	0.51
	3 1/8	0.60	0.43	0.40	0.61	0.54	0.52	0.16	0.04	0.02	0.55	0.52	0.51
	6 1/4	0.91	0.51	0.44	0.72	0.57	0.54	0.45	0.10	0.05	0.61	0.54	0.52
	7	0.99	0.53	0.45	0.75	0.58	0.55	0.53	0.12	0.05	0.62	0.54	0.52
	8	1.00	0.56	0.47	0.78	0.59	0.56	0.65	0.14	0.07	0.64	0.55	0.53
	9	1.00	0.59	0.49	0.82	0.61	0.56	0.78	0.17	0.08	0.66	0.55	0.53
	10	1.00	0.62	0.50	0.85	0.62	0.57	0.91	0.20	0.09	0.67	0.56	0.53
	11	1.00	0.65	0.52	0.89	0.63	0.58	1.00	0.23	0.11	0.69	0.56	0.54
	12	1.00	0.68	0.54	0.92	0.64	0.58	1.00	0.26	0.12	0.71	0.57	0.54
	13	1.00	0.71	0.55	0.96	0.65	0.59	1.00	0.30	0.14	0.72	0.57	0.54
	14	1.00	0.74	0.57	0.99	0.66	0.60	1.00	0.33	0.15	0.74	0.58	0.55
	15	1.00	0.78	0.59	1.00	0.68	0.61	1.00	0.37	0.17	0.76	0.59	0.55
	16	1.00	0.81	0.61	1.00	0.69	0.61	1.00	0.41	0.19	0.78	0.59	0.56
	17	1.00	0.85	0.62	1.00	0.70	0.62	1.00	0.45	0.21	0.79	0.60	0.56
	18	1.00	0.88	0.64	1.00	0.71	0.63	1.00	0.49	0.23	0.81	0.60	0.56
	19	1.00	0.92	0.66	1.00	0.72	0.63	1.00	0.53	0.24	0.83	0.61	0.57
	20	1.00	0.95	0.68	1.00	0.74	0.64	1.00	0.57	0.26	0.85	0.62	0.57
	22	1.00	1.00	0.72	1.00	0.76	0.66	1.00	0.66	0.30	0.88	0.63	0.58
	24	1.00	1.00	0.76	1.00	0.78	0.67	1.00	0.75	0.35	0.92	0.64	0.58
	26	1.00	1.00	0.80	1.00	0.81	0.68	1.00	0.84	0.39	0.95	0.65	0.59
	30	1.00	1.00	0.88	1.00	0.85	0.71	1.00	1.00	0.49	1.00	0.67	0.60
	36	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.64	1.00	0.71	0.62

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Metric Rebar

Metric Rebar M10- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8
	mm	60	130	200	60	130	200	60	130	200	60	130	200
Spacing (S) Edge Distance (C_a)	1 1/2	0.25	0.19	0.18	0.61	0.55	0.53	0.19	0.03	0.02	0.55	0.52	0.51
	1 7/8	0.28	0.21	0.19	0.63	0.56	0.54	0.26	0.04	0.02	0.56	0.53	0.52
	2	0.29	0.21	0.19	0.64	0.57	0.54	0.29	0.05	0.02	0.57	0.53	0.52
	3	0.38	0.24	0.21	0.71	0.60	0.56	0.53	0.09	0.05	0.60	0.55	0.53
	3 1/2	0.42	0.26	0.22	0.75	0.61	0.57	0.66	0.11	0.06	0.62	0.55	0.53
	4	0.48	0.28	0.23	0.78	0.63	0.58	0.81	0.13	0.07	0.63	0.56	0.54
	4 1/2	0.54	0.30	0.24	0.82	0.65	0.60	0.97	0.16	0.08	0.65	0.57	0.54
	5	0.60	0.32	0.25	0.85	0.66	0.61	1.00	0.19	0.10	0.66	0.58	0.55
	5 1/2	0.67	0.34	0.26	0.89	0.68	0.62	1.00	0.22	0.11	0.68	0.58	0.55
	6	0.73	0.36	0.28	0.92	0.70	0.63	1.00	0.25	0.13	0.70	0.59	0.56
	7	0.85	0.40	0.30	0.99	0.73	0.65	1.00	0.31	0.16	0.73	0.61	0.57
	8	0.97	0.45	0.32	1.00	0.76	0.67	1.00	0.38	0.20	0.76	0.62	0.58
	9	1.00	0.50	0.35	1.00	0.79	0.69	1.00	0.45	0.24	0.80	0.64	0.59
	10	1.00	0.56	0.38	1.00	0.83	0.71	1.00	0.53	0.28	0.83	0.65	0.60
	11	1.00	0.61	0.41	1.00	0.86	0.73	1.00	0.61	0.32	0.86	0.67	0.61
	12	1.00	0.67	0.44	1.00	0.89	0.75	1.00	0.70	0.37	0.89	0.68	0.62
	13	1.00	0.73	0.47	1.00	0.92	0.78	1.00	0.79	0.41	0.93	0.70	0.63
	14	1.00	0.78	0.51	1.00	0.96	0.80	1.00	0.88	0.46	0.96	0.71	0.64
	16	1.00	0.89	0.58	1.00	1.00	0.84	1.00	1.00	0.56	1.00	0.74	0.66
	18	1.00	1.00	0.65	1.00	1.00	0.88	1.00	1.00	0.67	1.00	0.77	0.68
	20	1.00	1.00	0.73	1.00	1.00	0.92	1.00	1.00	0.79	1.00	0.80	0.70
	24	1.00	1.00	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.74

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M10 – Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8	2 1/3	5 1/8	7 7/8
	mm	60	130	200	60	130	200	60	130	200	60	130	200
Spacing (S) Edge Distance (C_a)	1 1/2	0.59	0.45	0.42	0.61	0.55	0.53	0.19	0.03	0.02	0.55	0.52	0.51
	1 7/8	0.66	0.48	0.43	0.63	0.56	0.54	0.26	0.04	0.02	0.56	0.53	0.52
	2	0.68	0.49	0.44	0.64	0.57	0.54	0.29	0.05	0.02	0.57	0.53	0.52
	3	0.88	0.57	0.49	0.71	0.60	0.56	0.53	0.09	0.05	0.60	0.55	0.53
	3 1/2	0.99	0.61	0.51	0.75	0.61	0.57	0.66	0.11	0.06	0.62	0.55	0.53
	4	1.00	0.65	0.54	0.78	0.63	0.58	0.81	0.13	0.07	0.63	0.56	0.54
	4 1/2	1.00	0.69	0.56	0.82	0.65	0.60	0.97	0.16	0.08	0.65	0.57	0.54
	5	1.00	0.74	0.59	0.85	0.66	0.61	1.00	0.19	0.10	0.66	0.58	0.55
	5 1/2	1.00	0.79	0.62	0.89	0.68	0.62	1.00	0.22	0.11	0.68	0.58	0.55
	6	1.00	0.83	0.64	0.92	0.70	0.63	1.00	0.25	0.13	0.70	0.59	0.56
	7	1.00	0.93	0.70	0.99	0.73	0.65	1.00	0.31	0.16	0.73	0.61	0.57
	8	1.00	1.00	0.76	1.00	0.76	0.67	1.00	0.38	0.20	0.76	0.62	0.58
	9	1.00	1.00	0.82	1.00	0.79	0.69	1.00	0.45	0.24	0.80	0.64	0.59
	10	1.00	1.00	0.88	1.00	0.83	0.71	1.00	0.53	0.28	0.83	0.65	0.60
	11	1.00	1.00	0.95	1.00	0.86	0.73	1.00	0.61	0.32	0.86	0.67	0.61
	12	1.00	1.00	1.00	1.00	0.89	0.75	1.00	0.70	0.37	0.89	0.68	0.62
	13	1.00	1.00	1.00	1.00	0.92	0.78	1.00	0.79	0.41	0.93	0.70	0.63
	14	1.00	1.00	1.00	1.00	0.96	0.80	1.00	0.88	0.46	0.96	0.71	0.64
	16	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.56	1.00	0.74	0.66
	18	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.67	1.00	0.77	0.68
	20	1.00	1.00	1.00	1.00	1.00	0.92	1.00	1.00	0.79	1.00	0.80	0.70
	24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.74

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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M12- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9
	mm	70	160	240	70	160	240	70	160	240	70	160	240
Spacing (S) Edge Distance (C_a)	1 1/2	0.24	0.19	0.17	0.59	0.54	0.53	0.08	0.02	0.01	0.54	0.52	0.51
	2	0.27	0.20	0.18	0.62	0.55	0.54	0.12	0.04	0.02	0.56	0.52	0.52
	3	0.34	0.22	0.20	0.68	0.58	0.55	0.23	0.07	0.04	0.59	0.54	0.52
	3 1/2	0.38	0.24	0.21	0.71	0.59	0.56	0.29	0.09	0.05	0.60	0.54	0.53
	4	0.42	0.25	0.22	0.74	0.61	0.57	0.35	0.11	0.06	0.61	0.55	0.53
	4 1/2	0.47	0.27	0.22	0.77	0.62	0.58	0.42	0.13	0.07	0.63	0.56	0.54
	5	0.52	0.28	0.23	0.80	0.63	0.59	0.49	0.15	0.08	0.64	0.56	0.54
	5 1/2	0.57	0.30	0.24	0.83	0.65	0.60	0.57	0.17	0.10	0.66	0.57	0.55
	6	0.62	0.31	0.25	0.86	0.66	0.61	0.65	0.20	0.11	0.67	0.57	0.55
	6 1/2	0.67	0.33	0.26	0.89	0.67	0.61	0.73	0.22	0.12	0.68	0.58	0.55
	7	0.73	0.34	0.27	0.92	0.69	0.62	0.81	0.25	0.14	0.70	0.59	0.56
	8	0.83	0.38	0.29	0.98	0.71	0.64	0.99	0.31	0.17	0.73	0.60	0.57
	9	0.93	0.41	0.31	1.00	0.74	0.66	1.00	0.37	0.20	0.76	0.61	0.57
	10	1.00	0.45	0.33	1.00	0.76	0.68	1.00	0.43	0.23	0.78	0.62	0.58
	11	1.00	0.50	0.36	1.00	0.79	0.69	1.00	0.49	0.27	0.81	0.64	0.59
	12	1.00	0.54	0.38	1.00	0.82	0.71	1.00	0.56	0.31	0.84	0.65	0.60
	14	1.00	0.64	0.42	1.00	0.87	0.75	1.00	0.71	0.39	0.90	0.67	0.62
	16	1.00	0.73	0.48	1.00	0.92	0.78	1.00	0.87	0.47	0.96	0.70	0.63
	18	1.00	0.82	0.54	1.00	0.98	0.82	1.00	1.00	0.56	1.00	0.72	0.65
	20	1.00	0.91	0.60	1.00	1.00	0.85	1.00	1.00	0.66	1.00	0.75	0.67
	24	1.00	1.00	0.73	1.00	1.00	0.92	1.00	1.00	0.87	1.00	0.80	0.70
	28	1.00	1.00	0.85	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.85	0.73

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[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M12 – Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9	2 3/4	6 2/7	9 4/9
	mm	70	160	240	70	160	240	70	160	240	70	160	240
Spacing (S) Edge Distance (C_a)	1 1/2	0.55	0.43	0.40	0.59	0.54	0.53	0.08	0.02	0.01	0.54	0.52	0.51
	2	0.63	0.46	0.42	0.62	0.55	0.54	0.12	0.04	0.02	0.56	0.52	0.52
	3	0.79	0.52	0.46	0.68	0.58	0.55	0.23	0.07	0.04	0.59	0.54	0.52
	3 1/2	0.88	0.56	0.48	0.71	0.59	0.56	0.29	0.09	0.05	0.60	0.54	0.53
	4	0.97	0.59	0.50	0.74	0.61	0.57	0.35	0.11	0.06	0.61	0.55	0.53
	4 1/2	1.00	0.62	0.52	0.77	0.62	0.58	0.42	0.13	0.07	0.63	0.56	0.54
	5	1.00	0.66	0.55	0.80	0.63	0.59	0.49	0.15	0.08	0.64	0.56	0.54
	5 1/2	1.00	0.69	0.57	0.83	0.65	0.60	0.57	0.17	0.10	0.66	0.57	0.55
	6	1.00	0.73	0.59	0.86	0.66	0.61	0.65	0.20	0.11	0.67	0.57	0.55
	6 1/2	1.00	0.76	0.61	0.89	0.67	0.61	0.73	0.22	0.12	0.68	0.58	0.55
	7	1.00	0.80	0.63	0.92	0.69	0.62	0.81	0.25	0.14	0.70	0.59	0.56
	8	1.00	0.88	0.68	0.98	0.71	0.64	0.99	0.31	0.17	0.73	0.60	0.57
	9	1.00	0.96	0.73	1.00	0.74	0.66	1.00	0.37	0.20	0.76	0.61	0.57
	10	1.00	1.00	0.78	1.00	0.76	0.68	1.00	0.43	0.23	0.78	0.62	0.58
	11	1.00	1.00	0.83	1.00	0.79	0.69	1.00	0.49	0.27	0.81	0.64	0.59
	12	1.00	1.00	0.88	1.00	0.82	0.71	1.00	0.56	0.31	0.84	0.65	0.60
	14	1.00	1.00	0.99	1.00	0.87	0.75	1.00	0.71	0.39	0.90	0.67	0.62
	16	1.00	1.00	1.00	1.00	0.92	0.78	1.00	0.87	0.47	0.96	0.70	0.63
	18	1.00	1.00	1.00	1.00	0.98	0.82	1.00	1.00	0.56	1.00	0.72	0.65
	20	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.66	1.00	0.75	0.67
	24	1.00	1.00	1.00	1.00	1.00	0.92	1.00	1.00	0.87	1.00	0.80	0.70
	28	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.85	0.73

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[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
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[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M16- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5
	mm	80	200	320	80	200	320	80	200	320	80	200	320
Spacing (S) Edge Distance (C_a)	1 3/4	0.24	0.18	0.17	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	2	0.25	0.19	0.17	0.61	0.54	0.53	0.11	0.03	0.02	0.55	0.52	0.51
	3 3/4	0.36	0.22	0.20	0.70	0.58	0.55	0.29	0.08	0.04	0.59	0.54	0.52
	4	0.38	0.23	0.20	0.71	0.58	0.55	0.32	0.09	0.04	0.60	0.54	0.53
	5	0.45	0.25	0.21	0.76	0.61	0.57	0.45	0.13	0.06	0.63	0.55	0.53
	5 1/2	0.50	0.26	0.22	0.79	0.62	0.57	0.52	0.14	0.07	0.64	0.56	0.53
	6	0.54	0.28	0.22	0.82	0.63	0.58	0.59	0.16	0.08	0.65	0.56	0.54
	7	0.64	0.30	0.24	0.87	0.65	0.59	0.75	0.21	0.10	0.68	0.57	0.54
	7 3/8	0.67	0.31	0.24	0.89	0.66	0.60	0.81	0.22	0.11	0.69	0.57	0.55
	8	0.73	0.32	0.25	0.92	0.67	0.61	0.91	0.25	0.13	0.70	0.58	0.55
	9	0.82	0.35	0.27	0.98	0.69	0.62	1.00	0.30	0.15	0.73	0.59	0.56
	9 1/4	0.84	0.36	0.27	0.99	0.70	0.62	1.00	0.32	0.16	0.73	0.59	0.56
	10	0.91	0.38	0.28	1.00	0.71	0.63	1.00	0.35	0.18	0.75	0.60	0.56
	11	1.00	0.41	0.30	1.00	0.73	0.65	1.00	0.41	0.20	0.78	0.61	0.57
	12	1.00	0.44	0.31	1.00	0.75	0.66	1.00	0.47	0.23	0.80	0.62	0.58
	14	1.00	0.51	0.34	1.00	0.80	0.69	1.00	0.59	0.29	0.85	0.64	0.59
	16	1.00	0.58	0.38	1.00	0.84	0.71	1.00	0.72	0.35	0.90	0.66	0.60
	18	1.00	0.65	0.41	1.00	0.88	0.74	1.00	0.86	0.42	0.95	0.68	0.61
	20	1.00	0.73	0.45	1.00	0.92	0.76	1.00	1.00	0.50	1.00	0.70	0.63
	22	1.00	0.80	0.50	1.00	0.97	0.79	1.00	1.00	0.57	1.00	0.72	0.64
	26	1.00	0.94	0.59	1.00	1.00	0.84	1.00	1.00	0.73	1.00	0.76	0.66
	30	1.00	1.00	0.68	1.00	1.00	0.90	1.00	1.00	0.91	1.00	0.80	0.69

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Sika AnchorFix®-3030

Metric Rebar M16 – Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5	3 1/7	7 7/8	12 3/5
	mm	80	200	320	80	200	320	80	200	320	80	200	320
Spacing (S) Edge Distance (C_a)	1 3/4	0.56	0.43	0.40	0.59	0.54	0.52	0.09	0.03	0.01	0.54	0.52	0.51
	2	0.59	0.44	0.40	0.61	0.54	0.53	0.11	0.03	0.02	0.55	0.52	0.51
	3 3/4	0.84	0.52	0.46	0.70	0.58	0.55	0.29	0.08	0.04	0.59	0.54	0.52
	4	0.88	0.54	0.46	0.71	0.58	0.55	0.32	0.09	0.04	0.60	0.54	0.53
	5	1.00	0.59	0.49	0.76	0.61	0.57	0.45	0.13	0.06	0.63	0.55	0.53
	5 1/2	1.00	0.62	0.51	0.79	0.62	0.57	0.52	0.14	0.07	0.64	0.56	0.53
	6	1.00	0.64	0.52	0.82	0.63	0.58	0.59	0.16	0.08	0.65	0.56	0.54
	7	1.00	0.70	0.56	0.87	0.65	0.59	0.75	0.21	0.10	0.68	0.57	0.54
	7 3/8	1.00	0.72	0.57	0.89	0.66	0.60	0.81	0.22	0.11	0.69	0.57	0.55
	8	1.00	0.76	0.59	0.92	0.67	0.61	0.91	0.25	0.13	0.70	0.58	0.55
	9	1.00	0.82	0.62	0.98	0.69	0.62	1.00	0.30	0.15	0.73	0.59	0.56
	9 1/4	1.00	0.83	0.63	0.99	0.70	0.62	1.00	0.32	0.16	0.73	0.59	0.56
	10	1.00	0.88	0.66	1.00	0.71	0.63	1.00	0.35	0.18	0.75	0.60	0.56
	11	1.00	0.95	0.69	1.00	0.73	0.65	1.00	0.41	0.20	0.78	0.61	0.57
	12	1.00	1.00	0.73	1.00	0.75	0.66	1.00	0.47	0.23	0.80	0.62	0.58
	14	1.00	1.00	0.80	1.00	0.80	0.69	1.00	0.59	0.29	0.85	0.64	0.59
	16	1.00	1.00	0.88	1.00	0.84	0.71	1.00	0.72	0.35	0.90	0.66	0.60
	18	1.00	1.00	0.96	1.00	0.88	0.74	1.00	0.86	0.42	0.95	0.68	0.61
	20	1.00	1.00	1.00	1.00	0.92	0.76	1.00	1.00	0.50	1.00	0.70	0.63
	22	1.00	1.00	1.00	1.00	0.97	0.79	1.00	1.00	0.57	1.00	0.72	0.64
	26	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00	0.73	1.00	0.76	0.66
	30	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.91	1.00	0.80	0.69

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Sika AnchorFix®-3030

Metric Rebar M20- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	in	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6
	mm	mm	90	250	400	90	250	400	90	250	400	90	250
Spacing (S) Edge Distance (C_a)	1 7/8	1 7/8	0.23	0.18	0.17	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.52
	2	2	0.24	0.18	0.17	0.59	0.53	0.52	0.10	0.03	0.01	0.55	0.52
	2 1/2	2 1/2	0.27	0.19	0.17	0.62	0.54	0.53	0.15	0.04	0.02	0.56	0.52
	3 1/2	3 1/2	0.32	0.20	0.18	0.66	0.56	0.54	0.24	0.06	0.03	0.58	0.53
	4	4	0.35	0.21	0.19	0.69	0.57	0.54	0.30	0.07	0.04	0.59	0.53
	4 1/2	4 1/2	0.38	0.22	0.19	0.71	0.58	0.55	0.35	0.09	0.04	0.60	0.54
	5	5	0.41	0.23	0.20	0.74	0.58	0.55	0.41	0.10	0.05	0.61	0.54
	6	6	0.48	0.25	0.21	0.78	0.60	0.56	0.54	0.13	0.07	0.64	0.55
	7	7	0.56	0.27	0.22	0.83	0.62	0.57	0.69	0.17	0.08	0.66	0.56
	8	8	0.65	0.28	0.23	0.88	0.64	0.58	0.84	0.20	0.10	0.68	0.57
	9	9	0.73	0.30	0.24	0.92	0.65	0.60	1.00	0.24	0.12	0.70	0.57
	10	10	0.81	0.32	0.25	0.97	0.67	0.61	1.00	0.28	0.14	0.73	0.58
	12	12	0.97	0.37	0.28	1.00	0.70	0.63	1.00	0.37	0.18	0.77	0.60
	14	14	1.00	0.41	0.30	1.00	0.74	0.65	1.00	0.47	0.23	0.82	0.61
	16	16	1.00	0.46	0.32	1.00	0.77	0.67	1.00	0.57	0.28	0.86	0.63
	18	18	1.00	0.52	0.35	1.00	0.80	0.69	1.00	0.69	0.34	0.91	0.65
	20	20	1.00	0.58	0.38	1.00	0.84	0.71	1.00	0.80	0.40	0.95	0.66
	22	22	1.00	0.64	0.41	1.00	0.87	0.73	1.00	0.93	0.46	1.00	0.68
	24	24	1.00	0.70	0.44	1.00	0.91	0.75	1.00	1.00	0.52	1.00	0.70
	26	26	1.00	0.75	0.47	1.00	0.94	0.78	1.00	1.00	0.59	1.00	0.71
	28	28	1.00	0.81	0.51	1.00	0.97	0.80	1.00	1.00	0.66	1.00	0.73
	30	30	1.00	0.87	0.54	1.00	1.00	0.82	1.00	1.00	0.73	1.00	0.75

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Sika AnchorFix®-3030

Metric Rebar M20 - Cracked													
Factor:		Tension						mm					
		Edge Distance Factor			1 7/8			0.23			0.18		
h_{ef}:	in	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6	15 3/4	3 1/2	9 5/6	15 3/4
	mm	90	250	400	90	250	400	90	250	400	90	250	400
Spacing (S) Edge Distance (C_a)	1 7/8	0.55	0.42	0.39	0.59	0.53	0.52	0.10	0.02	0.01	0.54	0.52	0.51
	2	0.56	0.42	0.39	0.59	0.53	0.52	0.10	0.03	0.01	0.55	0.52	0.51
	2 1/2	0.62	0.44	0.40	0.62	0.54	0.53	0.15	0.04	0.02	0.56	0.52	0.51
	3 1/2	0.74	0.48	0.43	0.66	0.56	0.54	0.24	0.06	0.03	0.58	0.53	0.52
	4	0.81	0.50	0.44	0.69	0.57	0.54	0.30	0.07	0.04	0.59	0.53	0.52
	4 1/2	0.88	0.52	0.45	0.71	0.58	0.55	0.35	0.09	0.04	0.60	0.54	0.52
	5	0.95	0.54	0.46	0.74	0.58	0.55	0.41	0.10	0.05	0.61	0.54	0.53
	6	1.00	0.58	0.49	0.78	0.60	0.56	0.54	0.13	0.07	0.64	0.55	0.53
	7	1.00	0.62	0.51	0.83	0.62	0.57	0.69	0.17	0.08	0.66	0.56	0.54
	8	1.00	0.66	0.54	0.88	0.64	0.58	0.84	0.20	0.10	0.68	0.57	0.54
	9	1.00	0.71	0.56	0.92	0.65	0.60	1.00	0.24	0.12	0.70	0.57	0.55
	10	1.00	0.76	0.59	0.97	0.67	0.61	1.00	0.28	0.14	0.73	0.58	0.55
	12	1.00	0.86	0.64	1.00	0.70	0.63	1.00	0.37	0.18	0.77	0.60	0.56
	14	1.00	0.96	0.70	1.00	0.74	0.65	1.00	0.47	0.23	0.82	0.61	0.57
	16	1.00	1.00	0.76	1.00	0.77	0.67	1.00	0.57	0.28	0.86	0.63	0.58
	18	1.00	1.00	0.82	1.00	0.80	0.69	1.00	0.69	0.34	0.91	0.65	0.59
	20	1.00	1.00	0.88	1.00	0.84	0.71	1.00	0.80	0.40	0.95	0.66	0.60
	22	1.00	1.00	0.95	1.00	0.87	0.73	1.00	0.93	0.46	1.00	0.68	0.61
	24	1.00	1.00	1.00	1.00	0.91	0.75	1.00	1.00	0.52	1.00	0.70	0.62
	26	1.00	1.00	1.00	1.00	0.94	0.78	1.00	1.00	0.59	1.00	0.71	0.63
	28	1.00	1.00	1.00	1.00	0.97	0.80	1.00	1.00	0.66	1.00	0.73	0.64
	30	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	0.73	1.00	0.75	0.65

[1] For any calculation, minimum edge distance and minimum spacing must be considered and taken from the Installation Parameters table of this document or the relevant AC308 report.
[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M25- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	4	11 4/5	19 2/3	4	11 4/5	19 2/3	4	11 4/5	19 2/3	4	11 4/5	19 2/3
	mm	100	300	500	100	300	500	100	300	500	100	300	500
Spacing (S) Edge Distance (C_a)	2	0.23	0.18	0.16	0.58	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51
	3	0.28	0.19	0.17	0.63	0.54	0.53	0.18	0.04	0.02	0.56	0.52	0.51
	3 1/2	0.30	0.19	0.18	0.65	0.55	0.53	0.23	0.05	0.02	0.57	0.52	0.51
	4	0.32	0.20	0.18	0.67	0.56	0.53	0.28	0.06	0.03	0.58	0.53	0.52
	4 1/2	0.35	0.21	0.18	0.69	0.56	0.54	0.33	0.07	0.03	0.59	0.53	0.52
	5	0.38	0.22	0.19	0.71	0.57	0.54	0.39	0.09	0.04	0.60	0.53	0.52
	6	0.44	0.23	0.20	0.75	0.58	0.55	0.51	0.11	0.05	0.62	0.54	0.52
	7	0.51	0.24	0.20	0.80	0.60	0.56	0.64	0.14	0.07	0.65	0.55	0.53
	8	0.58	0.26	0.21	0.84	0.61	0.57	0.78	0.17	0.08	0.67	0.56	0.53
	9	0.65	0.28	0.22	0.88	0.63	0.58	0.93	0.21	0.10	0.69	0.56	0.54
	10	0.73	0.29	0.23	0.92	0.64	0.58	1.00	0.24	0.11	0.71	0.57	0.54
	11	0.80	0.31	0.24	0.97	0.66	0.59	1.00	0.28	0.13	0.73	0.58	0.55
	12	0.87	0.32	0.25	1.00	0.67	0.60	1.00	0.32	0.15	0.75	0.58	0.55
	13	0.94	0.34	0.26	1.00	0.68	0.61	1.00	0.36	0.17	0.77	0.59	0.55
	14	1.00	0.36	0.27	1.00	0.70	0.62	1.00	0.40	0.19	0.79	0.60	0.56
	16	1.00	0.40	0.28	1.00	0.73	0.64	1.00	0.49	0.23	0.83	0.61	0.57
	18	1.00	0.44	0.30	1.00	0.75	0.65	1.00	0.58	0.27	0.87	0.62	0.57
	20	1.00	0.48	0.32	1.00	0.78	0.67	1.00	0.68	0.32	0.91	0.64	0.58
	22	1.00	0.53	0.35	1.00	0.81	0.69	1.00	0.79	0.36	0.96	0.65	0.59
	24	1.00	0.58	0.37	1.00	0.84	0.70	1.00	0.89	0.42	1.00	0.67	0.60
	26	1.00	0.63	0.39	1.00	0.87	0.72	1.00	1.00	0.47	1.00	0.68	0.61
	30	1.00	0.73	0.44	1.00	0.92	0.75	1.00	1.00	0.58	1.00	0.71	0.62

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[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M25 – Cracked														
Factor:		Tension						Shear						
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor			
h_{ef}:	in	4	11 4/5	19 2/3	4	11 4/5	19 2/3	4	11 4/5	19 2/3	4	11 4/5	19 2/3	
	mm	100	300	500	100	300	500	100	300	500	100	300	500	
Spacing (S) Edge Distance (C_a)	2	0.54	0.41	0.38	0.58	0.53	0.52	0.10	0.02	0.01	0.54	0.51	0.51	
	3	0.64	0.44	0.40	0.63	0.54	0.53	0.18	0.04	0.02	0.56	0.52	0.51	
	3 1/2	0.70	0.45	0.41	0.65	0.55	0.53	0.23	0.05	0.02	0.57	0.52	0.51	
	4	0.76	0.47	0.42	0.67	0.56	0.53	0.28	0.06	0.03	0.58	0.53	0.52	
	4 1/2	0.82	0.49	0.43	0.69	0.56	0.54	0.33	0.07	0.03	0.59	0.53	0.52	
	5	0.88	0.50	0.44	0.71	0.57	0.54	0.39	0.09	0.04	0.60	0.53	0.52	
	6	1.00	0.54	0.46	0.75	0.58	0.55	0.51	0.11	0.05	0.62	0.54	0.52	
	7	1.00	0.57	0.48	0.80	0.60	0.56	0.64	0.14	0.07	0.65	0.55	0.53	
	8	1.00	0.61	0.50	0.84	0.61	0.57	0.78	0.17	0.08	0.67	0.56	0.53	
	9	1.00	0.64	0.52	0.88	0.63	0.58	0.93	0.21	0.10	0.69	0.56	0.54	
	10	1.00	0.68	0.54	0.92	0.64	0.58	1.00	0.24	0.11	0.71	0.57	0.54	
	11	1.00	0.72	0.56	0.97	0.66	0.59	1.00	0.28	0.13	0.73	0.58	0.55	
	12	1.00	0.76	0.58	1.00	0.67	0.60	1.00	0.32	0.15	0.75	0.58	0.55	
	13	1.00	0.80	0.60	1.00	0.68	0.61	1.00	0.36	0.17	0.77	0.59	0.55	
	14	1.00	0.84	0.62	1.00	0.70	0.62	1.00	0.40	0.19	0.79	0.60	0.56	
	16	1.00	0.92	0.66	1.00	0.73	0.64	1.00	0.49	0.23	0.83	0.61	0.57	
	18	1.00	1.00	0.71	1.00	0.75	0.65	1.00	0.58	0.27	0.87	0.62	0.57	
	20	1.00	1.00	0.76	1.00	0.78	0.67	1.00	0.68	0.32	0.91	0.64	0.58	
	22	1.00	1.00	0.81	1.00	0.81	0.69	1.00	0.79	0.36	0.96	0.65	0.59	
	24	1.00	1.00	0.86	1.00	0.84	0.70	1.00	0.89	0.42	1.00	0.67	0.60	
	26	1.00	1.00	0.91	1.00	0.87	0.72	1.00	1.00	0.47	1.00	0.68	0.61	
	30	1.00	1.00	1.00	1.00	0.92	0.75	1.00	1.00	0.58	1.00	0.71	0.62	

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[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M28- Uncracked Concrete														
Factor:		Tension						Shear						
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor			
h_{ef}:	in	4 2/5	13 7/9	22	4 2/5	13 7/9	22	4 2/5	13 7/9	22	4 2/5	13 7/9	22	
	mm	112	350	560	112	350	560	112	350	560	112	350	560	
Spacing (S) Edge Distance (C_a)	2 1/2	0.24	0.18	0.17	0.59	0.53	0.52	0.12	0.03	0.01	0.55	0.51	0.51	
	3	0.26	0.18	0.17	0.61	0.54	0.52	0.16	0.03	0.02	0.56	0.52	0.51	
	4	0.30	0.19	0.18	0.65	0.55	0.53	0.25	0.05	0.03	0.57	0.52	0.51	
	5	0.35	0.21	0.18	0.69	0.56	0.54	0.34	0.07	0.04	0.59	0.53	0.52	
	6	0.40	0.22	0.19	0.73	0.57	0.55	0.45	0.09	0.05	0.61	0.54	0.52	
	7	0.45	0.23	0.20	0.76	0.58	0.55	0.57	0.12	0.06	0.63	0.54	0.53	
	8	0.52	0.24	0.21	0.80	0.60	0.56	0.70	0.14	0.07	0.65	0.55	0.53	
	9	0.58	0.26	0.21	0.84	0.61	0.57	0.83	0.17	0.09	0.67	0.55	0.53	
	10	0.65	0.27	0.22	0.88	0.62	0.58	0.97	0.20	0.10	0.69	0.56	0.54	
	11	0.71	0.28	0.23	0.92	0.63	0.58	1.00	0.23	0.12	0.71	0.57	0.54	
	12	0.78	0.30	0.24	0.95	0.65	0.59	1.00	0.27	0.13	0.72	0.57	0.54	
	13	0.84	0.31	0.24	0.99	0.66	0.60	1.00	0.30	0.15	0.74	0.58	0.55	
	14	0.91	0.32	0.25	1.00	0.67	0.61	1.00	0.34	0.17	0.76	0.58	0.55	
	15	0.97	0.34	0.26	1.00	0.68	0.61	1.00	0.37	0.18	0.78	0.59	0.56	
	16	1.00	0.35	0.27	1.00	0.69	0.62	1.00	0.41	0.20	0.80	0.60	0.56	
	17	1.00	0.37	0.28	1.00	0.71	0.63	1.00	0.45	0.22	0.82	0.60	0.56	
	18	1.00	0.39	0.29	1.00	0.72	0.64	1.00	0.49	0.24	0.84	0.61	0.57	
	20	1.00	0.42	0.30	1.00	0.74	0.65	1.00	0.57	0.28	0.87	0.62	0.57	
	22	1.00	0.46	0.32	1.00	0.77	0.67	1.00	0.66	0.33	0.91	0.63	0.58	
	26	1.00	0.54	0.36	1.00	0.81	0.70	1.00	0.85	0.42	0.99	0.66	0.60	
	30	1.00	0.62	0.40	1.00	0.86	0.73	1.00	1.00	0.52	1.00	0.68	0.61	
	36	1.00	0.75	0.47	1.00	0.94	0.77	1.00	1.00	0.68	1.00	0.72	0.63	

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Sika AnchorFix®-3030

Metric Rebar M28 – Cracked														
Factor:		Tension						Shear						
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor			
h_{ef}:	in	4 2/5	13 7/9	22	4 2/5	13 7/9	22	4 2/5	13 7/9	22	4 2/5	13 7/9	22	
	mm	112	350	560	112	350	560	112	350	560	112	350	560	
Spacing (S) Edge Distance (C_a)	2 1/2	0.56	0.41	0.39	0.59	0.53	0.52	0.12	0.03	0.01	0.55	0.51	0.51	
	3	0.61	0.43	0.40	0.61	0.54	0.52	0.16	0.03	0.02	0.56	0.52	0.51	
	4	0.71	0.45	0.41	0.65	0.55	0.53	0.25	0.05	0.03	0.57	0.52	0.51	
	5	0.81	0.48	0.43	0.69	0.56	0.54	0.34	0.07	0.04	0.59	0.53	0.52	
	6	0.93	0.51	0.45	0.73	0.57	0.55	0.45	0.09	0.05	0.61	0.54	0.52	
	7	1.00	0.54	0.46	0.76	0.58	0.55	0.57	0.12	0.06	0.63	0.54	0.53	
	8	1.00	0.57	0.48	0.80	0.60	0.56	0.70	0.14	0.07	0.65	0.55	0.53	
	9	1.00	0.60	0.50	0.84	0.61	0.57	0.83	0.17	0.09	0.67	0.55	0.53	
	10	1.00	0.63	0.51	0.88	0.62	0.58	0.97	0.20	0.10	0.69	0.56	0.54	
	11	1.00	0.66	0.53	0.92	0.63	0.58	1.00	0.23	0.12	0.71	0.57	0.54	
	12	1.00	0.69	0.55	0.95	0.65	0.59	1.00	0.27	0.13	0.72	0.57	0.54	
	13	1.00	0.72	0.57	0.99	0.66	0.60	1.00	0.30	0.15	0.74	0.58	0.55	
	14	1.00	0.76	0.59	1.00	0.67	0.61	1.00	0.34	0.17	0.76	0.58	0.55	
	15	1.00	0.79	0.61	1.00	0.68	0.61	1.00	0.37	0.18	0.78	0.59	0.56	
	16	1.00	0.83	0.63	1.00	0.69	0.62	1.00	0.41	0.20	0.80	0.60	0.56	
	17	1.00	0.86	0.65	1.00	0.71	0.63	1.00	0.45	0.22	0.82	0.60	0.56	
	18	1.00	0.90	0.67	1.00	0.72	0.64	1.00	0.49	0.24	0.84	0.61	0.57	
	20	1.00	0.97	0.71	1.00	0.74	0.65	1.00	0.57	0.28	0.87	0.62	0.57	
	22	1.00	1.00	0.75	1.00	0.77	0.67	1.00	0.66	0.33	0.91	0.63	0.58	
	26	1.00	1.00	0.84	1.00	0.81	0.70	1.00	0.85	0.42	0.99	0.66	0.60	
	30	1.00	1.00	0.93	1.00	0.86	0.73	1.00	1.00	0.52	1.00	0.68	0.61	
	36	1.00	1.00	1.00	1.00	0.94	0.77	1.00	1.00	0.68	1.00	0.72	0.63	

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Sika AnchorFix®-3030

Metric Rebar M32- Uncracked Concrete													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15 3/4	25 1/5	5	15 3/4	25 1/5	5	15 3/4	25 1/5	5	15 3/4	25 1/5
	mm	128	400	640	128	400	640	128	400	640	128	400	640
Spacing (S) Edge Distance (C_a)	2 3/4	0.24	0.18	0.17	0.59	0.53	0.52	0.12	0.03	0.01	0.55	0.51	0.51
	3 1/8	0.25	0.18	0.17	0.60	0.53	0.52	0.15	0.03	0.02	0.55	0.52	0.51
	6 1/4	0.37	0.21	0.19	0.71	0.57	0.54	0.42	0.09	0.04	0.60	0.53	0.52
	7	0.40	0.22	0.19	0.73	0.57	0.55	0.50	0.10	0.05	0.62	0.54	0.52
	8	0.45	0.23	0.20	0.76	0.58	0.55	0.61	0.13	0.06	0.63	0.54	0.53
	9	0.51	0.24	0.20	0.80	0.60	0.56	0.73	0.15	0.07	0.65	0.55	0.53
	10	0.57	0.25	0.21	0.83	0.61	0.57	0.85	0.18	0.09	0.67	0.55	0.53
	11	0.62	0.26	0.22	0.86	0.62	0.57	0.98	0.20	0.10	0.68	0.56	0.54
	12	0.68	0.28	0.22	0.90	0.63	0.58	1.00	0.23	0.12	0.70	0.56	0.54
	13	0.74	0.29	0.23	0.93	0.64	0.59	1.00	0.26	0.13	0.72	0.57	0.54
	14	0.79	0.30	0.24	0.96	0.65	0.59	1.00	0.29	0.15	0.73	0.57	0.55
	15	0.85	0.31	0.25	1.00	0.66	0.60	1.00	0.33	0.16	0.75	0.58	0.55
	16	0.91	0.32	0.25	1.00	0.67	0.61	1.00	0.36	0.18	0.77	0.58	0.55
	17	0.96	0.34	0.26	1.00	0.68	0.61	1.00	0.39	0.19	0.78	0.59	0.56
	18	1.00	0.35	0.27	1.00	0.69	0.62	1.00	0.43	0.21	0.80	0.60	0.56
	19	1.00	0.36	0.27	1.00	0.70	0.63	1.00	0.46	0.23	0.81	0.60	0.56
	20	1.00	0.38	0.28	1.00	0.71	0.63	1.00	0.50	0.25	0.83	0.61	0.57
	22	1.00	0.41	0.30	1.00	0.73	0.65	1.00	0.58	0.29	0.86	0.62	0.57
	24	1.00	0.44	0.31	1.00	0.75	0.66	1.00	0.66	0.33	0.90	0.63	0.58
	26	1.00	0.47	0.33	1.00	0.78	0.67	1.00	0.74	0.37	0.93	0.64	0.59
	30	1.00	0.54	0.36	1.00	0.82	0.70	1.00	0.92	0.46	1.00	0.66	0.60
	36	1.00	0.65	0.41	1.00	0.88	0.74	1.00	1.00	0.60	1.00	0.69	0.62

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[2] Linear interpolations between embedment depths or spacing/edge distance is not permitted
[3] All values assume that slab depth is equal to or greater than $1.5h_{ef}$. For cases where slab depth is less than $1.5h_{ef}$, independent design must be conducted in accordance with design equations from ACI Chapter 17 or CSA A23.3 Annex D.
[4] All design reduction factors are only to be used in conjunction with the Strength Design Tables included in this document.
[5] For Anchor Spacing in Shear, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor. In cases where there is no edge distance to consider the Edge Distance Reduction Factor in Shear = 1.
[6] For Anchor Spacing in Tension, a group of two anchors has been considered with measured spacing being parallel to the concrete edge and with both anchors having equal edge distance. Only anchors in these conditions should be considered for application of this reduction factor.

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Sika AnchorFix®-3030

Metric Rebar M32 - Cracked													
Factor:		Tension						Shear					
		Edge Distance Factor			Spacing Factor			Edge Distance Factor			Spacing Factor		
h_{ef}:	in	5	15 3/4	25 1/5	5	15 3/4	25 1/5	5	15 3/4	25 1/5	5	15 3/4	25 1/5
	mm	128	400	640	128	400	640	128	400	640	128	400	640
Spacing (S) Edge Distance (C_a)	2 3/4	0.55	0.41	0.39	0.59	0.53	0.52	0.12	0.03	0.01	0.55	0.51	0.51
	3 1/8	0.58	0.42	0.39	0.60	0.53	0.52	0.15	0.03	0.02	0.55	0.52	0.51
	6 1/4	0.87	0.49	0.44	0.71	0.57	0.54	0.42	0.09	0.04	0.60	0.53	0.52
	7	0.94	0.51	0.45	0.73	0.57	0.55	0.50	0.10	0.05	0.62	0.54	0.52
	8	1.00	0.54	0.46	0.76	0.58	0.55	0.61	0.13	0.06	0.63	0.54	0.53
	9	1.00	0.56	0.48	0.80	0.60	0.56	0.73	0.15	0.07	0.65	0.55	0.53
	10	1.00	0.59	0.49	0.83	0.61	0.57	0.85	0.18	0.09	0.67	0.55	0.53
	11	1.00	0.62	0.51	0.86	0.62	0.57	0.98	0.20	0.10	0.68	0.56	0.54
	12	1.00	0.64	0.52	0.90	0.63	0.58	1.00	0.23	0.12	0.70	0.56	0.54
	13	1.00	0.67	0.54	0.93	0.64	0.59	1.00	0.26	0.13	0.72	0.57	0.54
	14	1.00	0.70	0.56	0.96	0.65	0.59	1.00	0.29	0.15	0.73	0.57	0.55
	15	1.00	0.73	0.57	1.00	0.66	0.60	1.00	0.33	0.16	0.75	0.58	0.55
	16	1.00	0.76	0.59	1.00	0.67	0.61	1.00	0.36	0.18	0.77	0.58	0.55
	17	1.00	0.79	0.61	1.00	0.68	0.61	1.00	0.39	0.19	0.78	0.59	0.56
	18	1.00	0.82	0.62	1.00	0.69	0.62	1.00	0.43	0.21	0.80	0.60	0.56
	19	1.00	0.85	0.64	1.00	0.70	0.63	1.00	0.46	0.23	0.81	0.60	0.56
	20	1.00	0.88	0.66	1.00	0.71	0.63	1.00	0.50	0.25	0.83	0.61	0.57
	22	1.00	0.95	0.69	1.00	0.73	0.65	1.00	0.58	0.29	0.86	0.62	0.57
	24	1.00	1.00	0.73	1.00	0.75	0.66	1.00	0.66	0.33	0.90	0.63	0.58
	26	1.00	1.00	0.76	1.00	0.78	0.67	1.00	0.74	0.37	0.93	0.64	0.59
	30	1.00	1.00	0.84	1.00	0.82	0.70	1.00	0.92	0.46	1.00	0.66	0.60
	36	1.00	1.00	0.96	1.00	0.88	0.74	1.00	1.00	0.60	1.00	0.69	0.62

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