



HEAVY-DUTY SCREW ANCHORS

**One Anchor. Faster Installs.
Stronger Holds.**

Upgrade from wedge anchors with
a faster, more efficient solution for
concrete fastening.



INSTALLS
2-3X
FASTER

UP TO
20%
STRONGER HOLD

NO
EXPANSION
STRESS

FREE
TRUSPEC DESIGN
SOFTWARE

ICC
ES

MADE IN THE
USA

Start Speeding Up Your Installs

Traditional wedge anchors create unnecessary friction:

Multi-step installs
(Drill, drive, clean, assemble, torque)

Expansion stress limits
edge distance and spacing

Extra parts =
more time, more errors

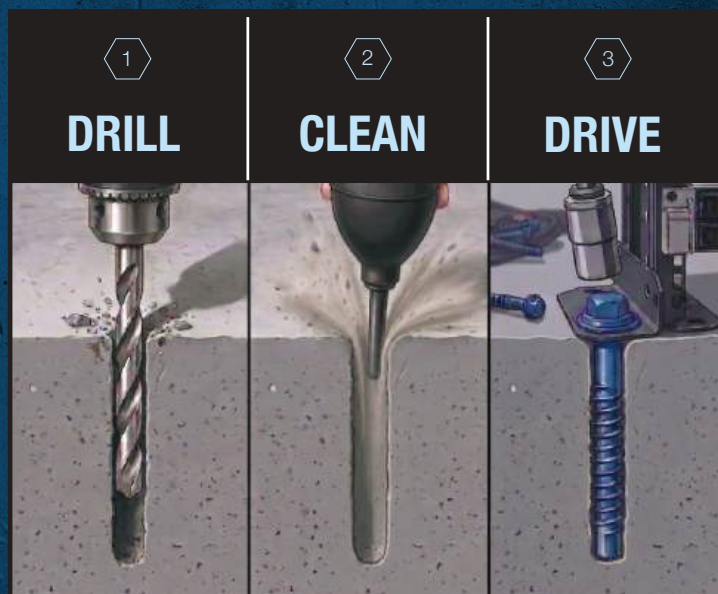
Tapcon+ Simplifies Everything

Drill. Clean. Drive. Done.



Washers.
Nuts.
Torquing sequence.

One-piece anchor reduces install time and errors.



Built for Performance Where It Matters Most

Heavy-Duty Performance

Blue Climaseal coating provides
better corrosion resistance

Heat-treated carbon steel
for strength and ductility

Advanced Threadform
Technology™ easily cuts
into concrete

Up to **20% higher** holding
power vs. wedge anchors

ICC-compliant; evaluated for
uncracked, cracked, and seismic
applications (ESR-3699)



Speed & Efficiency

Installs

2-3x faster

than traditional expansion anchors

Simplifies
MRO and on-site
inventory



Install Closer to Edge and Closer to One Another

No expansion pressure on hole walls

Install closer to edges and in tighter spacing



Designed for Real Jobsite Demands

Ideal Applications



Data centers

(Racking, cable tray, equipment, supports)



MEP systems

(Electrical, HVAC, plumbing)



Warehouse and industrial

(Conveyor belts, machinery)



Maintenance and retrofit work

Built for



Electrical & low-voltage contractors



MEP contractors



Facility & MRO teams



Distributor sales teams



Steel erectors



FREE Truspec
Design Software

truspec
ANCHOR CALCULATION SOFTWARE 3.0



Access Truspec

Built to Last in Harsh Environments

- **Climaseal® blue coating** delivers multi-stage corrosion protection
- Heat-treated carbon steel for strength and ductility
- Removable for flexibility in retrofit jobs



Wedge Anchors

✓ Fast (2-3x)	Install speed	✗ Slower
✓ One piece	Parts needed	✗ Multiple
✓ Closer installs	Edge distance & spacing	✗ Limited
✓ Yes	Removable	✗ No

SELECTION GUIDE

Part No.	Description	Inner Carton Qty	Master Carton Qty	Anchor Diameter	Drill Bit	Anchor Length	Inner Carton Weight	Master Carton Weight
TCPC-3830	3/8" X 3" HWH TAPCON+ BLUE CL	30	300	3/8"	3/8"	3"	3.80 lbs	38.00 lbs
TCPC-3840	3/8" X 4" HWH TAPCON+ BLUE CL	30	300	3/8"	3/8"	4"	4.75 lbs	47.50 lbs
TCPC-3850	3/8" X 5" HWH TAPCON+ BLUE CL	20	200	3/8"	3/8"	5"	3.85 lbs	38.50 lbs
TCPC-3860	3/8" X 6" HWH TAPCON+ BLUE CL	20	200	3/8"	3/8"	6"	4.50 lbs	45.00 lbs
TCPC-1230	1/2" X 3" HWH TAPCON+ BLUE CL	20	120	1/2"	1/2"	3"	4.72 lbs	28.31 lbs
TCPC-1240	1/2" X 4" HWH TAPCON+ BLUE CL	20	120	1/2"	1/2"	4"	6.15 lbs	36.90 lbs
TCPC-1250	1/2" X 5" HWH TAPCON+ BLUE CL	15	90	1/2"	1/2"	5"	5.40 lbs	32.40 lbs
TCPC-1260	1/2" X 6" HWH TAPCON+ BLUE CL	15	90	1/2"	1/2"	6"	6.25 lbs	37.50 lbs

Tapcon is the #1 recognized screw anchor brand in the industry. Make the Switch Today!

Scan for full specs & installation guide
Visit: www.itwredhead.com
Contact your local distributor



Product Web Page



Technical Data



Access Truspec

Tapcon® + Concrete Screw Anchors

**Heavy-Duty
Performance,
Removable Anchor**



MADE IN USA

DESCRIPTION/SUGGESTED SPECIFICATIONS

Concrete Anchors —

SPECIFIED FOR FAST, HEAVY DUTY ANCHORING INTO CONCRETE, BLOCK, AND MASONRY



Tapcon+
Concrete
Screw Anchor

Tapcon+ heavy duty concrete screw anchors are a one-piece, self-threading alternative to traditional wedge and sleeve anchors, delivering 2–3x faster installs with up to 20% more holding power in concrete and masonry. Their advanced threadform design cuts its own threads into the base material, reducing installation torque and user fatigue while simplifying the install sequence.

Anchors are manufactured from heat-treated carbon steel for high strength and ductility, and are finished with a corrosion-resistant blue Climaseal coating for longterm performance in harsh environments.

Unlike expansion anchors, Tapcon+ anchors create no expansion stress on the hole walls, allowing them to be installed closer together and closer to edges for greater design flexibility. They are also easily removable, making them ideal for maintenance, retrofit work, and applications where equipment or layouts may change.

ADVANTAGES

SAVE TIME

- Installs 2–3x faster than wedge and sleeve anchors
- One piece design – just drill, clean and drive; no sleeves, nuts, washer, or torquing sequence

EASILY REMOVED

- Unscrews for quick equipment moves, retrofits and rework
- No torching, grinding or breaking out expansion anchors

SAVE LABOR & IMPROVE PERFORMANCE

- Up to 20% more holding power than comparable expansion anchors in concrete

GREATER DESIGN FLEXIBILITY

- No expansion stress on hole walls – can be installed closer to edges and in tighter spacing

SIMPLIFY INVENTORY

- Reduce the need to stock multiple anchor types, such as wedge & sleeve anchors, by using a versatile heavy-duty concrete screw anchor solution

ACCESSORIES

PART NUMBER	DESCRIPTION	BOX QTY
11494C	3/8 x 8 SDS Plus ANSI Drill Bit	10
11495C	1/2 x 10 SDS Plus ANSI Drill Bit	10

IDEAL APPLICATIONS

DATA CENTERS

Racking, cable tray, equipment, supports

MEP SYSTEMS

Electrical, HVAC, plumbing

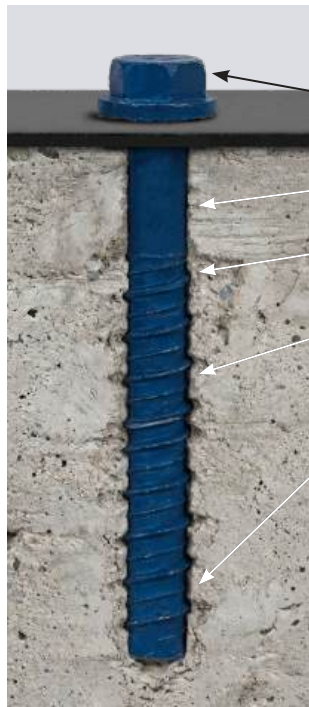
WAREHOUSE AND INDUSTRIAL

Conveyor belts, machinery

MAINTENANCE AND RETROFIT WORK



Tapcon+ Screw Anchors



FEATURES

- Up to 20% higher holding power vs. wedge and sleeve anchors
- Heat-treated carbon steel – for strength and ductility
- Blue Climaseal coating – for better corrosion resistance
- Advanced Threadform Technology™ – easily cuts into concrete, block, and masonry
- ICC-ES compliant – evaluated for cracked, uncracked concrete and seismic applications



* Code can be found on anchor head

APPROVALS

ICC ESR-3699

Cracked & Uncracked and Seismic approved
City of Los Angeles Supplement
California Supplement
Florida Supplement

LENGTH IDENTIFICATION

CODE *	LENGTH OF ANCHOR	
	in.	mm
B	2 < 2-1/2	51 < 63
C	2-1/2 < 3	63 < 76
D	3 < 3-1/2	78 < 89
F	4 < 4-1/2	102 < 114
H	5 < 5-1/2	127 < 140
J	6 < 6-1/2	152 < 165
L	7 < 7-1/2	178 < 191
N	8 < 8-1/2	203 < 216

INSTALLATION STEPS

For concrete, lightweight concrete, and metal deck

- Using a carbide drill bit, drill a hole at least 1/4" deeper than the anchor embedment.
- Clean the hole with pressurized air or vacuum to remove any excess dust and debris.
- Using an impact or manual wrench, insert the anchor into the hole and tighten anchor until fully seated.



ANCHOR INSTALL SPECIFICATIONS

ANCHOR DIAMETER (IN.)	ANSI DRILL BIT DIAMETER (IN.)	ANCHOR HEAD A.F (SOCKET SIZE) (IN.)	ANCHOR HEAD HEIGHT (IN.)	ANCHOR WASHER DIAMETER (IN.)	MANUAL TORQUE WRENCH MAX. TORQUE (FT-LBS)	IMPACT TORQUE MAX. TORQUE RATING (FT-LBS)
3/8	3/8	9/16	0.35	13/16	50	200
1/2	1/2	3/4	0.45	1	70	345



Call our toll free number 800-848-5611 or visit our web site for the most current product and technical information at www.itwredhead.com



SELECTION CHART

PART NUMBER	DESCRIPTION	ANCHOR DIAMETER	ANCHOR LENGTH	DRILL BIT	INNER CARTON QTY	MASTER CARTON QTY
TCPC-3830	3/8" X 3" HWH TAPCON+ BLUE CL	3/8"	3"	3/8"	30	300
TCPC-3840	3/8" X 4" HWH TAPCON+ BLUE CL	3/8"	4"	3/8"	30	300
TCPC-3850	3/8" X 5" HWH TAPCON+ BLUE CL	3/8"	5"	3/8"	20	200
TCPC-3860	3/8" X 6" HWH TAPCON+ BLUE CL	3/8"	6"	3/8"	20	200
TCPC-1230	1/2" X 3" HWH TAPCON+ BLUE CL	1/2"	3"	1/2"	20	120
TCPC-1240	1/2" X 4" HWH TAPCON+ BLUE CL	1/2"	4"	1/2"	20	120
TCPC-1250	1/2" X 5" HWH TAPCON+ BLUE CL	1/2"	5"	1/2"	15	90
TCPC-1260	1/2" X 6" HWH TAPCON+ BLUE CL	1/2"	6"	1/2"	15	90

PERFORMANCE TABLE

Tapcon+
Screw Anchors

Installation Information

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
Nominal outside diameter (shank)	d_a	in.	0.38	0.50		
Nominal outside diameter (thread)	-	in.	0.46	0.59		
Drill bit diameter	d_{bit}	in.	3/8	1/2		
Minimum base plate clearance hole diameter	d_h	in.	1/2	5/8		
Maximum installation torque	$T_{inst,max}$	ft-lbf	50	70		
Maximum impact wrench torque rating	$T_{impact,max}$	ft-lbf	200	345		
Effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum nominal embedment depth	h_{nom}	in.	2 1/2	2	3	4
Minimum hole depth	h_{hole}	in.	2 3/4	2 1/4	3 1/4	4 1/4
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	in.	4 1/2	3	4	5
Minimum edge distance	C_{min}	in.	1 1/2	2 1/2	1 3/4	2 1/2
Minimum spacing	S_{min}	in.	3	3	3 1/2	3

PERFORMANCE TABLE

Tapcon+
Screw Anchors

Tension Strength Design Information¹

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
ANSI drill bit diameter	d_{bit}	in.	3/8 ANSI bit	1/2 ANSI bit		
Anchor category	$1, 2 \text{ or } 3$	-	1	1		
Minimum effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	in.	4 1/2	3	4	5
DATA FOR STEEL STRENGTH IN TENSION						
Minimum specified yield strength	f_y	psi	100,000	100,000		
Minimum specified ultimate strength	f_{uta}	psi	125,000	125,000		
Effective tensile stress area	A_{se}	in ²	0.098	0.185		
Steel strength in tension	N_{sa}	lbf	12,250	23,125		
Strength reduction factor Φ for tension, steel failure modes	ϕ_{sa}	-	0.65	0.65		
DATA FOR CONCRETE BREAKOUT STRENGTH IN TENSION						
Effectiveness factor - uncracked concrete	k_{uncr}	-	27	30		
Effectiveness factor - cracked concrete	k_{cr}	-	17	17		
Modification factor for cracked and uncracked concrete	$\Psi_{c, N}$	-	1.0	1.0		
Strength reduction factor Φ for tension, concrete failure modes	ϕ_{cb}	-	0.65	0.65		
DATA FOR PULLOUT STRENGTH IN TENSION						
Pullout strength, uncracked concrete	$N_{p,uncr}$	lbf	See note 2	See note 2		
Pullout strength, cracked concrete	$N_{p,cr}$	lbf	1,837	See note 2		
Pullout strength for seismic loads	$N_{p,eq}$	lbf	1,677	See note 2		
Strength reduction factor Φ for tension, pullout failure modes ³	ϕ_p	-	0.65	See note 2		
ADDITIONAL ANCHOR DATA						
Axial stiffness in service load range in uncracked concrete	β_{uncr}	lbf/in	800,000	800,000		
Axial stiffness in service load range in cracked concrete	β_{cr}	lbf/in	365,000	365,000		

Notes:

¹ The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.

² Pullout resistance does not govern design and does not need to be considered.

³ The strength reduction factor for tension applies when the load combinations from ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.

PERFORMANCE TABLE

Tapcon+
Screw Anchors

Shear Strength Design Information¹

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
Drill bit diameter	d_{bit}	in.	3/8 ANSI bit	1/2 ANSI bit		
Anchor category	1, 2 or 3	-	1	1		
Minimum effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	ft-lbf	4 1/2	3	4	5
DATA FOR STEEL STRENGTH IN SHEAR						
Minimum specified yield strength	f_y	psi	100,000	100,000		
Minimum specified ultimate strength	f_{uta}	psi	125,000	125,000		
Effective tensile stress area	A_{se}	in ²	0.098	0.185		
Steel strength in shear - static	V_{sa}	lbf	3,621	12,610		
Steel strength in shear - seismic	$V_{sa,eq}$	lbf	2,920	9,300		
Strength reduction factor Φ for tension, steel failure modes ²	ϕ_{sa}	-	0.60	0.60		
DATA FOR CONCRETE BREAKOUT AND CONCRETE PRYOUT IN SHEAR						
Nominal Outside diameter (shank)	d_a	in.	0.38	0.50		
Load bearing length of anchor	l_e	in.	1.78	1.32	2.17	3.02
Coefficient for Pryout Strength	K_{cp}	-	1.0	1.0	1.0	2.0
Strength reduction factor for shear, concrete breakout ²	ϕ_{cb}	-	0.70	0.70		
Strength reduction factor for shear, pryout ²	ϕ_{cp}	-	0.70	0.70		

Notes:

¹ The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.

² The strength reduction factor for shear applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.

PERFORMANCE TABLE

Tapcon+
Screw Anchors

Allowable Stress Design Tension Values^{1,2,3}

NOMINAL ANCHOR DIAMETER (IN.)	NOMINAL EMBEDMENT DEPTH (IN.)	EFFECTIVE EMBEDMENT DEPTH (IN.)	ALLOWABLE TENSION LOAD (LBF)
3/8	2.50	1.78	1,335
1/2	2.00	1.32	800
	3.00	2.17	1,685
	4.00	3.02	2,765

Notes:

¹ Single anchor with static tension load only and anchor is installed with edge distance equal to or larger than the critical edge distance.

² Normal weight, uncracked concrete, $f_c = 2,500$ psi

³ Load combination from ACI 318-19 Section 5.3, 30% dead load and 70% live load, controlling load combination $1.2D + 1.6L$. Calculation of weighted average for $\alpha = 0.3 \cdot 1.2 + 0.7 \cdot 1.6 = 1.48$.

PERFORMANCE TABLE

**Tapcon+
Screw Anchors**

**Design Information for Tapcon+ Concrete Screw Anchors Located in the
Soffit of Concrete over Steel Deck Floor and Roof Assemblies^{1,2,3,4}**

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)		
			1/2		
Location of installation	-	-	Lower Flute		Upper Flute
Minimum hole depth	h_{hole}	in.	2 1/2	4 1/2	2 1/2
Minimum nominal embedment depth	h_{nom}	in.	2	4	2
Minimum effective embedment depth	h_{ef}	in.	1.32	3.02	1.32
Characteristic pullout strength, uncracked concrete over metal deck	$N_{p,deck,uncr}$	lbf	1,720	4,950	2,405
Characteristic pullout strength, cracked concrete over metal deck	$N_{p,deck,cr}$	lbf	975	2,805	1,360
Characteristic shear strength, concrete over metal deck	$V_{sa,deck}$	lbf	3,825	6,130	3,825
Characteristic shear strength - seismic, concrete over metal deck	$V_{sa,deck,eq}$	lbf	2,820	4,520	2,820
Reduction factor for pullout strength in tension	ϕ	-	0.65		
Reduction factor for steel strength in shear	ϕ	-	0.60		

Notes:

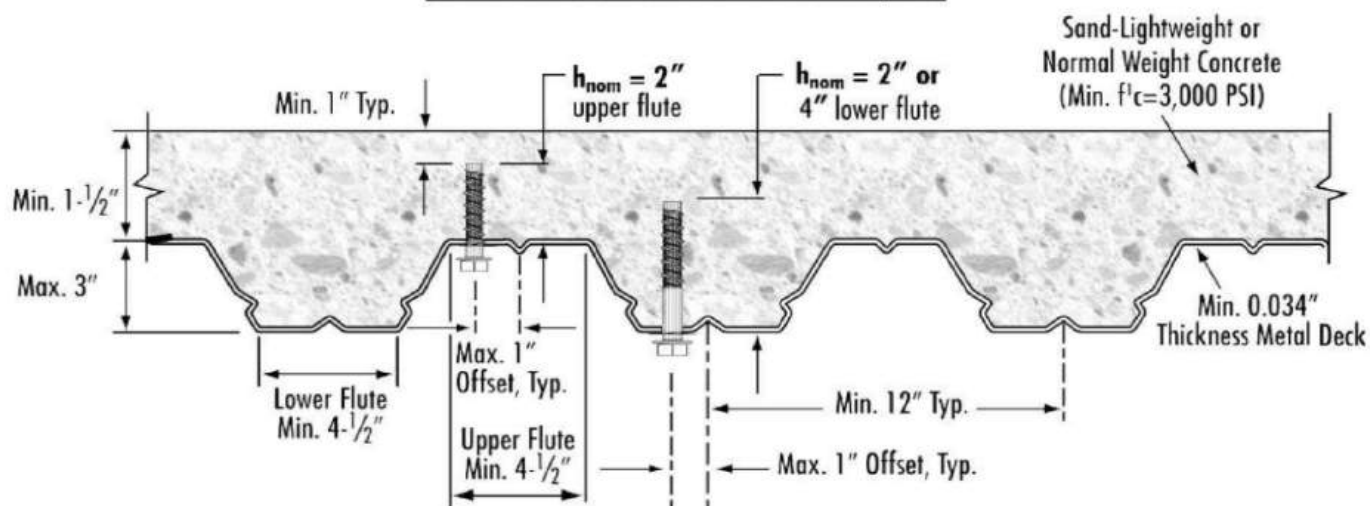
¹ Values for characteristic pullout strengths and characteristic shear strengths apply to sand-lightweight concrete having a minimum concrete compressive strength of 3,000 psi.

² The characteristic pull-out strength for greater concrete compressive strengths shall be increased by multiplying the tabular value by $(f'_c/3000)^{0.5}$.

³ The strength reduction factor applies when the load combinations from ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.

⁴ The minimum anchor spacing along the flute must be the greater of $3h_{ef}$ or 1.5 times the flute width.

Nominal Anchor Diameter = 1/2"



ICC-ES Evaluation Report

ESR-3699

Reissued March 2026

This report also contains:

- [City of LA Supplement](#)

Subject to renewal March 2028

- [CA Supplement](#)

- [FL Supplement](#)

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DIVISION: 03 00 00— CONCRETE Section: 03 16 00— Concrete Anchors DIVISION: 05 00 00— METALS Section: 05 05 19—Post- Installed Concrete Anchors	REPORT HOLDER: ITW RED HEAD ADDITIONAL LISTEE: ITW BRANDS	EVALUATION SUBJECT: TAPCON+ SCREW ANCHORS AND SAMMYS THREADED ROD ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, and 2012 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, and 2012 [International Residential Code® \(IRC\)](#)

Property evaluated:

- Structural

2.0 USES

The 1/4-inch-, 3/8-inch-, and 1/2-inch-diameter (6.4 mm, 9.5 mm, and 12.7 mm) Tapcon+ Screw Anchors with Advanced Threadform Technology are used as anchorage in cracked and uncracked normalweight and lightweight concrete having a specified compressive strength $f'_c = 2,500$ psi to 8,500 psi (17.2 MPa to 58.6 MPa) to resist static, wind, and seismic tension and shear loads.

The 1/2-inch-diameter (12.7 mm) Tapcon+ Screw Anchors with Advanced Threadform Technology are also used as anchorage when installed in the soffit of cracked and uncracked normalweight and sand-lightweight concrete over steel deck having a minimum specified compressive strength $f'_c = 3,000$ psi (20.7 MPa) to resist static, wind, and seismic tension and shear loads.

The 1/4-inch-diameter (6.4 mm) SAMMYS Anchors for use with threaded rods are available in two head styles: the SAMMYS vertical threaded rod anchor, CCST 516; and SAMMYS horizontal threaded rod anchor, SW-CCST 516. The CCST 516 anchor is used as anchorage in cracked and uncracked normalweight and sand-lightweight concrete having a specified compressive strength $f'_c = 2,500$ psi to 8,500 psi (17.2 MPa to 58.6 MPa) to resist static and wind, tension or shear loads, and seismic tension loads only. The SW-CCST 516 anchor is used as anchorage in uncracked normalweight and sand-lightweight concrete having a specified compressive strength $f'_c = 2,500$ psi to 8,500 psi (17.2 MPa to 58.6 MPa) to resist static and wind shear loads only.

The anchoring system is an alternative to cast-in-place anchors described in Section 1901.3 of the 2021, 2018 and 2015 IBC, and Sections 1908 and 1909 of the 2012 IBC. The anchors may also be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 Tapcon+ Anchors with Advanced Threadform Technology:

The Tapcon+ Anchors with Advanced Threadform Technology are manufactured from carbon steel with supplementary heat treatment. The anchors have an alternating high-low thread form on the shank and are available a variety of lengths with nominal diameters of $\frac{1}{4}$ -inch, $\frac{3}{8}$ -inch, and $\frac{1}{2}$ -inch (6.4 mm, 9.5 mm, and 12.7 mm). The Tapcon+ Screw Anchors are available with a hex washer head, and have a blue Climaseal[®] coating. The $\frac{1}{2}$ -inch diameter anchors are also available with a mechanically galvanized zinc coating in accordance with ASTM B695, Class 65, Type I. Illustrations of anchors are provided in [Figure 1](#).

3.2 SAMMYS Anchors for Threaded Rods:

The SAMMYS Screw Anchor is a two-piece, carbon steel threaded anchor that is comprised of the $\frac{1}{4}$ -inch-diameter (6.4 mm) Tapcon+ Screw Anchor with Advanced Threadform Technology and a $\frac{3}{8}$ -inch-16 UNC internal thread hex shaped cap. The hex shaped cap is manufactured from carbon steel alloy complying with UNS G1010 heat treated steel and has an electrodeposited coating of zinc, minimum thickness of 0.0002 inch (5 μ m), in accordance with ASTM B633, SC1, Type III.

The SAMMYS Screw Anchors are available with a $2\frac{1}{2}$ -inch (63.5 mm) length. Two models are available: SAMMYS Vertical Threaded Rod Anchor (Model No. CCST 516) and SAMMYS Horizontal Threaded Rod Anchor (Model No. SW-CCST 516). [Figure 3](#) illustrates the SAMMYS vertical threaded rod anchor and SAMMYS horizontal threaded rod anchor with their torque limiting installation tools. The installation tools are designed to prevent over torque conditions upon installation. The design also permits the nut driver to release from the head of the anchor once fully installed.

3.3 Concrete:

Normalweight and lightweight concrete must comply with Sections 1903 and 1905 of the IBC, as applicable.

3.4 Steel Deck Panels:

Steel deck panels must comply with the configurations in [Figure 6](#) and have a minimum base steel thickness of 0.034 inch (0.864 mm). Steel must comply with ASTM A653 Grade 40, with a minimum yield strength of 40,000 psi (276 MPa).

4.0 DESIGN AND INSTALLATION

4.1 Strength Design:

4.1.1 General: Design strength of anchors complying with the 2021 IBC, as well as Section R301.1.3 of the 2021 IRC must be determined in accordance with ACI 318-19 Chapter 17 and this report

Design strength of anchors complying with the 2018 and 2015 IBC, as well as Section R301.1.3 of the 2018 and 2015 IRC must be determined in accordance with ACI 318-14 Chapter 17 and this report.

Design strength of anchors complying with the 2012 IBC and Section R301.1.3 of the 2012 IRC, must be determined in accordance with ACI 318-11 Appendix D and this report.

Design parameters provided in [Tables 1, 2, 3](#) and [5](#) are based on the 2021 IBC (ACI 318-19), 2018 and 2015 IBC (ACI 318-14) and 2012 IBC (ACI 318-11) unless noted otherwise in Sections 4.1.2 through 4.1.12 of this report.

The strength design must comply with ACI 318-19 17.5.1.2, ACI 318-14 17.3.1 or ACI 318-11 D.4.1, except as required in ACI 318-19 17.10, ACI 318-14 17.2.3 or ACI 318-11 D.3.3, as applicable. Strength reduction factors, ϕ , as given in ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 Section D.4.3, as applicable, and noted in [Tables 2, 3](#), and [5](#) must be used for load combinations calculated in accordance with Section 1605.1 of the 2021 IBC or Section 1605.2 of the 2018, 2015 and 2012 IBC, Section 5.3 of ACI 318 (-19 and -14) or Section 9.2 of ACI 318-11, as applicable. Strength reduction factors as given in ACI 318-11 D.4.4 must be used for load combinations set forth in ACI 318-11 Appendix C.

The value of f'_c used in the calculations must be limited to a maximum of 8,000 psi (55.2 MPa), in accordance with ACI 318-19 17.3.1, ACI 318-14 17.2.7 or ACI 318-11 D.3.7, as applicable.

4.1.2 Requirements for Static Steel Strength in Tension, N_{sa} : The nominal static steel strength of a single anchor in tension is calculated in accordance with ACI 318-19 17.6.1.2, ACI 318-14 17.4.1.2 or ACI 318-11 D.5.1.2, as applicable. The N_{sa} values of a single anchor are given in [Table 2](#) of this report. Strength reduction

factors, ϕ , corresponding to brittle steel elements as defined in ACI 318 (-19 or -14) 2.3 or ACI 318-11 D.1, as applicable, and provided in [Table 2](#), must be used.

4.1.3 Requirements for Static Concrete Breakout Strength in Tension, N_{cb} or N_{cbg} : The nominal static concrete breakout strength for a single anchor or group of anchors in tension, N_{cb} or N_{cbg} , must be calculated in accordance with ACI 318-19 17.6.2, ACI 318-14 17.4.2 or ACI 318-11 D.5.2, as applicable, with modifications as described in this section. The basic concrete breakout strength in tension, N_b , must be calculated in accordance with ACI 318-19 17.6.2.2, ACI 318-14 17.4.2.2 or ACI 318-11 D.5.2.2, as applicable, using the values of h_{ef} and k_{cr} as given in [Table 2](#). The nominal concrete breakout strength in tension in regions of concrete where analysis indicates no cracking at service loads in accordance with ACI 318-19 17.6.2.5, ACI 318-14 17.4.2.6 or ACI 318-11 D.5.2.6, as applicable, must be calculated using the values of k_{uncr} as given in [Table 2](#) of this report with $\psi_{c,N} = 1.0$.

For 1/2-inch-diameter (12.7 mm) Tapcon+ Screw Anchors installed in the soffit of sand-lightweight or normalweight concrete on steel deck floor and roof assemblies, as shown in [Figure 6](#), calculation of the concrete breakout strength is not required.

4.1.4 Requirements for Static Pullout Strength in Tension, N_p : The nominal pullout strength of a single anchor in tension in accordance with ACI 318-19 17.6.3.1 and 17.6.3.2.1, ACI 318-14 17.4.3.1 and 17.4.3.2 or ACI 318-11 D.5.3.1 and D.5.3.2, as applicable, in cracked and uncracked concrete, $N_{p,cr}$ and $N_{p,uncr}$, respectively, is given in [Table 2](#) of this report. For all design cases $\Psi_{c,P} = 1.0$. In accordance with ACI 318-19 17.6.3, ACI 318-14 17.4.3 or ACI 318-11 D.5.3, as applicable, the nominal pullout strength in cracked concrete may be adjusted for concrete strengths according to Eq-1:

$$N_{p,f'_c} = N_{p,cr} \left(\frac{f'_c}{2,500} \right)^n \quad (\text{lb,psi}) \quad (\text{Eq-1})$$

$$N_{p,f'_c} = N_{p,cr} \left(\frac{f'_c}{17.2} \right)^n \quad (\text{N, MPa})$$

where f'_c is the specified compressive strength and n is the factor defining the influence of concrete strength on the pullout strength. For the 3/8-inch-diameter anchor in cracked concrete, n is 0.12. For all other diameters, n is 0.5.

In regions where analysis indicates no cracking in accordance with ACI 318-19 17.6.3.3, ACI 318-14 17.4.3.6 or ACI 318-11 D.5.3.6, as applicable, the nominal pullout strength in tension may be adjusted for concrete strengths according to Eq-2:

$$N_{p,f'_c} = N_{p,uncr} \left(\frac{f'_c}{2,500} \right)^n \quad (\text{lb,psi}) \quad (\text{Eq-2})$$

$$N_{p,f'_c} = N_{p,uncr} \left(\frac{f'_c}{17.2} \right)^n \quad (\text{N, MPa})$$

where f'_c is the specified compressive strength and n is the factor defining the influence of concrete strength on the pullout strength. For all diameters, n is 0.5.

Where values for $N_{p,cr}$ or $N_{p,uncr}$ are not provided in [Table 2](#), the pullout strength in tension need not be evaluated.

The nominal pullout strength in cracked concrete of the 1/2-inch-diameter (12.7 mm) Tapcon+ Screw Anchor installed in the soffit of sand-lightweight or normalweight concrete on steel deck floor and roof assemblies, as shown in [Figure 6](#), is given in [Table 5](#). In accordance with ACI 318-19 17.6.3.2.1, ACI 318-14 17.4.3.2 or ACI 318-11 D.5.3.2, as applicable, the nominal pullout strength in cracked concrete must be calculated in accordance with Eq-1, whereby the value of $N_{p,deck,cr}$ must be substituted for $N_{p,cr}$ and the value of 3,000 psi (20.7 MPa) must be substituted for the value of 2,500 psi (17.2 MPa) in the denominator. In regions where analysis indicates no cracking in accordance with ACI 318-19 17.6.3.3, ACI 318-14 17.4.3.6 or ACI 318-11 D.5.3.6, as applicable, the nominal strength in uncracked concrete must be calculated according to Eq-2, whereby the value of $N_{p,deck,uncr}$ must be substituted for $N_{p,uncr}$ and the value of 3,000 psi (20.7 MPa) must be substituted for the value of 2,500 psi (17.2 MPa) in the denominator.

4.1.5 Requirements for Static Steel Strength in Shear, V_{sa} : The nominal steel strength in shear, V_{sa} , of a single anchor in accordance with ACI 318-19 17.7.1.2, ACI 318-14 17.5.1.2 or ACI 318-11 D.6.1.2, as applicable, is given in [Table 3](#) of this report and must be used in lieu of the values derived by calculation from ACI 318-19 Eq. 17.7.1.2b, ACI 318-14 Eq. 17.5.1.2b or ACI 318-11, Eq. D-29, as applicable. Strength reduction

factors, ϕ , corresponding to brittle steel elements as defined in ACI 318 (-19 or -14) 2.3 or ACI 318-11 D.1, as applicable, and provided in [Table 3](#), must be used.

The nominal shear strength $V_{sa,deck}$, of anchors installed in the soffit of sand-lightweight or normalweight concrete filled steel deck floor and roof assemblies, as shown in [Figure 6](#), is given in [Table 5](#).

4.1.6 Requirements for Static Concrete Breakout Strength of Anchor in Shear, V_{cb} or V_{cbg} : The nominal static concrete breakout strength of a single anchor or group of anchors in shear, V_{cb} or V_{cbg} , must be calculated in accordance with ACI 318-19 17.7.2, ACI 318-14 17.5.2 or ACI 318-11 D.6.2, as applicable, with modifications as described in this section. The basic concrete breakout strength of a single anchor in shear, V_b , must be calculated in accordance with ACI 318-19 17.7.2.2.1, ACI 318-14 17.5.2.2 or ACI 318-11 D.6.2.2, as applicable, based on the values provided in [Table 3](#). The value of l_e used in ACI 318-19 Eq. 17.7.2.2.1a, ACI 318-14 Eq. 17.5.2.2a or ACI 318-11 Eq. D-33, as applicable, must be taken as no greater than the lesser of h_{ef} or $8d_a$.

For $1/2$ -inch-diameter (12.7 mm) Tapcon+ Screw Anchors installed in the soffit of sand-lightweight or normalweight concrete on steel deck floor and roof assemblies, as shown in [Figure 6](#), calculation of the concrete breakout strength in shear is not required.

4.1.7 Requirements for Static Concrete Pryout Strength in Shear, V_{cp} or V_{cpb} : The nominal static concrete pryout strength of a single anchor or group of anchors in shear, V_{cp} or V_{cpb} , must be calculated in accordance with ACI 318-19 17.7.3, ACI 318-14 17.5.3 or ACI 318-11 D.6.3, as applicable, using the value of k_{cp} described in [Table 3](#), and the values of N_{cb} or N_{cbg} as calculated in Section 4.1.3 of this report.

For $1/2$ inch (12.7 mm) diameter Tapcon+ Screw Anchors installed in the soffit of sand-lightweight or normalweight concrete on steel deck floor and roof assemblies, as shown in [Figure 6](#), calculation of the concrete pryout strength in shear is not required.

4.1.8 Requirements for Seismic Design:

4.1.8.1 General: For load combinations including seismic, the design must be performed according to ACI 318-19 17.10, ACI 318-14 17.2.3 or ACI 318-11 D.3.3, as applicable. Modifications to ACI 318-19 17.10 or ACI 318-14 17.2.3 shall be applied under Section 1905.1.8 of the 2021, 2018 and 2015 IBC, as applicable. For the 2012 IBC, Section 1905.1.9 must be omitted.

The anchors comply with ACI 318 (-19 and -14) 2.3 or ACI 318-11 D.1, as applicable, as brittle steel elements and must be designed in accordance with ACI 318-19 17.10.5, 17.10.6, 17.10.7 or 17.10.4; ACI 318-14 17.2.3.4, 17.2.3.5, 17.2.3.6 or 17.2.3.7 or ACI 318-11 D.3.3.4, D.3.3.5, D.3.3.6 or D.3.3.7, as applicable.

The $1/4$ -inch-, $3/8$ -inch-, and $1/2$ -inch-diameter (6.4 mm, 9.5 mm, and 12.7 mm) Tapcon+ Screw Anchors may be installed in regions designated as IBC Seismic Design Categories A through F.

The $1/4$ -inch (6.4 mm) SAMMYS vertical threaded rod anchors (CCST 516) are limited to seismic tension loads only, and seismic shear loads are beyond the scope of this report. The $1/4$ -inch (6.4 mm) SAMMYS horizontal threaded rod anchors (SW-CCST 516) are limited to static shear loads only, and seismic tension or shear loads are beyond the scope of this report. The SAMMYS vertical threaded rod anchors (CCST 516) may be installed in regions designated as IBC Seismic Design Categories A through F.

4.1.8.2 Seismic Tension: The nominal steel strength and nominal concrete breakout strength for anchors in tension must be calculated according to ACI 318-19 17.6.1 and 17.6.2, ACI 318-14 17.4.1 and 17.4.2 or ACI 318-11 D.5.1 and D.5.2, respectively, as applicable, as described in Sections 4.1.2 and 4.1.3 of this report. In accordance with ACI 318-19 17.6.3.2.1, ACI 318-14 17.4.3.2 or ACI 318-11 D.5.3.2, as applicable, the value for nominal pullout strength in tension for seismic loads, $N_{p,eq}$ or $N_{p,deck,cr}$, given in [Table 2](#) and [Table 5](#) of this report, must be used in lieu of N_p . The values of $N_{p,eq}$ or $N_{p,deck,cr}$ must be adjusted for the concrete strength in accordance with Eq-2 and Section 4.1.4 whereby the value of $N_{p,deck,cr}$ must be substituted for $N_{p,cr}$ and the value of 3,000 psi (20.7 MPa) must be substituted for the value of 2,500 psi (17.2 MPa) in the denominator. If no values for $N_{p,eq}$ are given in [Table 2](#) or [Table 5](#), the static design strength values govern.

4.1.8.3 Seismic Shear: The nominal concrete breakout strength and pryout strength for anchors in shear must be calculated according to ACI 318-19 17.7.2 and 17.7.3, ACI 318-14 17.5.2 and 17.5.3 or ACI 318-11 D.6.2 and D.6.3, respectively, as applicable, as described in Sections 4.1.6 and 4.1.7 of this report. In accordance with ACI 318-19 17.7.1.2, ACI 318-14 17.5.1.2 or ACI 318-11 D.6.1.2, as applicable, the value for

nominal steel strength in shear for seismic loads, $V_{sa,eq}$, or $V_{sa,deck}$, given in [Tables 3](#) or [5](#) of this report, must be used in lieu of V_{sa} , as applicable.

4.1.9 Requirements for Interaction of Tensile and Shear Forces: For designs that include combined tension and shear, the interaction of tension and shear loads must be calculated in accordance with ACI 318-19 17.8, ACI 318-14 17.6 or ACI 318-11 D.7, as applicable. For the Sammys anchors, influence of bending on tension values when loaded in shear must be considered.

4.1.10 Requirements for Critical Edge Distance: In applications where $c < c_{ac}$ and supplemental reinforcement to control splitting of the concrete is not present, the concrete breakout strength in tension for uncracked concrete, calculated in accordance with ACI 318-19 17.6.2, ACI 318-14 17.4.2 or ACI 318-11 D.5.2, as applicable, must be further multiplied by the factor $\psi_{cp,N}$ given by Eq-3:

$$\psi_{cp,N} = \frac{c}{c_{ac}} \quad (\text{Eq-3})$$

whereby the factor $\psi_{cp,N}$ need not be taken as less than $\frac{1.5h_{ef}}{c_{ac}}$. For all other cases, $\psi_{cp,N} = 1.0$. In lieu of ACI 318-19 17.9.5, ACI 318-14 17.7.6 or ACI 318-11 D.8.6, as applicable, the values for the critical edge distance, c_{ac} , must be taken from [Table 1](#).

4.1.11 Requirements for Minimum Member Thickness, Minimum Anchor Spacing and Minimum Edge Distance: In lieu of ACI 318-19 17.9.2, ACI 318-14 17.7.1 and 17.7.3 or ACI 318-11 D.8.1 and D.8.3, respectively, as applicable, values of s_{min} and c_{min} as given in [Table 1](#) of this report must be used. In lieu of ACI 318-19 17.9.4, ACI 318-14 17.7.5 or ACI 318-11 D.8.5, minimum concrete thickness h_{min} as given in [Table 1](#) of this report must be used.

For $1/2$ -inch-diameter (12.7 mm) Tapcon+ Screw Anchors installed in the soffit of sand-lightweight or normalweight concrete on steel deck floor and roof assemblies, the anchors must be installed in accordance with [Figure 6](#) and must have an axial spacing along the flute equal to the greater of $3h_{ef}$ or 1.5 times the flute width.

4.1.12 Lightweight Concrete: For the use of anchors in lightweight concrete, the modification factor λ_a equal to 0.8 λ is applied to all values of $\sqrt{f'_c}$ affecting N_n and V_n .

For ACI 318-19 (2021 IBC), ACI 318-14 (2018 and 2015 IBC) and ACI 318-11 (2012 IBC), λ shall be determined in accordance with the corresponding version of ACI 318.

For anchors installed in the soffit of sand-lightweight concrete-filled steel deck and floor and roof assemblies, further reduction of the pullout values provided in this report is not required.

4.2 Allowable Stress Design:

4.2.1 General: Design values for use with allowable stress design (working stress design) load combinations calculated in accordance with Section 1605.1 of the 2021 IBC or Section 1605.3 of the 2018, 2015 and 2012 IBC, must be established as follows:

$$T_{allowable, ASD} = \frac{\phi N_n}{\alpha} \quad (\text{Eq-4})$$

$$V_{allowable, ASD} = \frac{\phi V_n}{\alpha} \quad (\text{Eq-5})$$

where:

$T_{allowable, ASD}$ = Allowable tension load (lbf or kN).

$V_{allowable, ASD}$ = Allowable tension load (lbf or kN).

ϕN_n = Lowest design strength of an anchor or anchor group in tension as determined in accordance with ACI 318 (-19 and -14) Chapter 17 and 2021, 2018 and 2015 IBC Section 1905.1.8, ACI 318-11 Appendix D, and Section 4.1 of this report, as applicable (lbf or kN). For the 2012 IBC, Section 1905.1.9 must be omitted.

ϕV_n = Lowest design strength of an anchor or anchor group in shear as determined in accordance with ACI 318 (-19 and -14) Chapter 17 and 2021, 2018 and 2015 IBC Section 1905.1.8, ACI 318-11 Appendix D, and Section 4.1 of this report, as applicable (lbf or kN). For the 2012 IBC, Section 1905.1.9 must be omitted.

α = Conversion factor calculated as a weighted average of the load factors for the controlling load combination. In addition, α must include all applicable factors to account for nonductile failure modes and required over-strength.

Limits on edge distance, anchor spacing and member thickness as given in Section 4.1.11 of this report must apply. An illustrative example of allowable stress design values is shown in [Table 4](#).

4.2.2 Interaction of Tensile and Shear Forces: The interaction must be calculated and consistent with ACI 318-19 17.8, ACI 318-14 17.6 or ACI 318-11 D.7, as applicable, as follows:

If $T_{applied} \leq 0.2 T_{allowable, ASD}$, the full allowable load in shear $V_{allowable, ASD}$ shall be permitted.

If $V_{applied} \leq 0.2 V_{allowable, ASD}$, the full allowable load in tension $T_{allowable, ASD}$ shall be permitted.

For all other cases:

$$\frac{T_{applied}}{T_{allowable, ASD}} + \frac{V_{applied}}{V_{allowable, ASD}} \leq 1.2 \quad (\text{Eq-6})$$

4.3 Installation:

Installation parameters are provided in [Table 1](#) and [Figures 4](#) and [6](#) of this report. The Tapcon+ Screw Anchors and SAMMYS Anchors must be installed in accordance with the manufacturer's published instructions and this report. In case of conflict, this report governs. Anchor locations must comply with this report and the plans and specifications approved by the code official.

4.3.1 Tapcon+ Screw Anchors with Advanced Threadform Technology: $\frac{1}{4}$ -inch-, $\frac{3}{8}$ -inch-, and $\frac{1}{2}$ -inch-diameter (6.4 mm, 9.5 mm, and 12.7 mm) Tapcon+ Screw Anchors must be installed according to ITW's published instructions and this report. For the $\frac{1}{4}$ -inch-diameter (6.4 mm) anchor, the holes must be predrilled in concrete with a carbide-tipped drill bit complying with ANSI B212.15-1994 or a Tapcon+ carbide-tipped drill bit, supplied by ITW. For the $\frac{3}{8}$ -inch- and $\frac{1}{2}$ -inch-diameter (9.5 mm and 12.7 mm) anchors, the holes must be predrilled in concrete with a carbide-tipped drill bit complying with ANSI B212.15-1994. The hole must be drilled to the specified minimum hole depth, h_{hole} , in accordance with [Table 1](#). Before anchor installation, dust and other debris must be removed by use of a vacuum or compressed air. The anchors must then be installed through the attachment into the hole, in accordance with ITW's instructions, to the specified nominal embedment depth using a powered impact wrench or manual torque wrench until the proper embedment depth is obtained. The maximum impact wrench torque and maximum installation torque for the manual torque wrench must be in accordance with [Table 1](#). The Tapcon+ Screw Anchors may be loosened by a maximum of one turn and retightened with a manual torque wrench or powered impact wrench to facilitate fixture attachment or realignment. Complete removal and reinstallation of the anchor is not allowed.

For installation of the $\frac{1}{2}$ -inch-diameter (12.7 mm) Tapcon+ Screw Anchor in the soffit of concrete on steel deck assemblies, the hole diameter in the steel deck must not exceed the diameter of the hole in the concrete by more than $\frac{1}{8}$ inch (3.2 mm). For member thickness and edge distance restrictions for installations into the soffit of concrete on steel deck assemblies, see [Figure 6](#).

4.3.2 SAMMYS Anchors for Threaded Rod: The SAMMYS Anchors must be installed according to ITW's published instructions and this report. Holes must be predrilled in concrete with a Tapcon carbide-tipped drill bit complying with ANSI B212.15-1994, supplied by ITW. The hole must be drilled to the specified nominal embedment depth plus a minimum of $\frac{1}{4}$ inch (6.4 mm). Before anchor installation, dust and other debris must be removed by use of a vacuum or compressed air. The anchors must then be installed into the hole, in accordance with ITW's instructions, to the specified nominal embedment depth using a powered impact wrench in conjunction with the ITW torque limiting nut driver until the proper embedment depth is obtained. Removal and reinstallation of the anchor is not allowed.

4.4 Special Inspection:

Periodic special inspection is required in accordance with Section 1705.1.1 and Table 1705.3 of the 2021, 2018, 2015 and 2012 IBC, as applicable. The special inspector must make periodic inspections during anchor installation to verify anchor type, anchor dimensions, concrete type, concrete compressive strength, hole dimensions, anchor spacing, edge distances, concrete thickness, anchor embedment, drill bit type and size, hole cleaning procedures, installation torque, and adherence to the manufacturer's published installation instructions and the conditions of this report (in case of conflict, this report governs). The special inspector must be present as often as required in accordance with the "statement of special inspection."

5.0 CONDITIONS OF USE:

The Tapcon+ Screw Anchors and SAMMYS Anchors described in this report are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Anchor sizes, dimensions, embedment, and installation are as set forth in this report.
- 5.2 The anchors must be installed in accordance with the manufacturer's published installation instructions and this report. In case of conflict, this report governs.
- 5.3 The 1/4-inch-, 3/8-inch-, and 1/2-inch-diameter (6.4 mm, 9.5 mm and 12.7 mm) anchors must be used in cracked and uncracked normalweight concrete and lightweight concrete having a specified compressive strength, f'_c , of 2,500 psi to 8,500 psi (17.2 MPa to 58.6 MPa).
- 5.4 The 1/2-inch-diameter (12.7 mm) anchor may be used in cracked and uncracked normalweight or sand-lightweight concrete over metal deck having a minimum specified compressive strength, f'_c , of 3,000 psi (20.7 MPa).
- 5.5 The values of f'_c used for calculation purposes must not exceed 8,000 psi (55.1 MPa).
- 5.6 The concrete shall have attained its minimum design strength prior to installation of the anchors.
- 5.7 Strength design values must be established in accordance with Section 4.1 of this report.
- 5.8 Allowable stress design values must be established in accordance with Section 4.2 of this report.
- 5.9 Anchor spacing, edge distance, and minimum concrete thickness must comply with Section 4.1.11, [Table 1](#), and [Figure 6](#) of this report.
- 5.10 Reported values for the SAMMYS Anchors for Threaded Rod do not consider the steel element threaded into the anchor, which must be verified by the design professional. SAMMYS Anchors must be installed directly into the concrete, without the use of a baseplate.
- 5.11 Prior to installation, calculations and details demonstrating compliance with this report must be submitted to the code official for approval. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.12 Since an ICC-ES acceptance criteria for evaluating data to determine the performance of anchors subjected to fatigue or shock loading is unavailable at this time, the use of these anchors under these conditions is beyond the scope of this report.
- 5.13 The 1/4-inch-, 3/8-inch-, and 1/2-inch-diameter (6.4 mm, 9.5 mm, and 12.7 mm) Tapcon+ Screw Anchors may be used to resist short-term loading due to wind forces and for seismic load combinations in locations designated as Seismic Design Categories A through F under the IBC, subject to the conditions of this report.
- 5.14 The 1/4-inch-diameter (6.4 mm) SAMMYS Anchors may be used to resist short-term loading due to wind forces and seismic tension loads only in locations designated as Seismic Design Categories A through F under the IBC, subject to the conditions of this report.
- 5.15 Anchors are not permitted to support fire-resistance-rated construction. Where not otherwise prohibited by the code, anchors are permitted for installation in fire-resistance-rated construction provided that at least one of the following conditions is fulfilled:
 - Anchors are used to resist wind or seismic forces only.
 - Anchors that support a fire-resistance-rated envelope or a fire-resistance-rated membrane, are protected by approved fire-resistance-rated materials, or have been evaluated for resistance to fire exposure in accordance with recognized standards.
 - Anchors are used to support nonstructural elements.
- 5.16 The anchors have been evaluated for reliability against brittle failure and found to be not significantly sensitive to stress-induced hydrogen-embrittlement.
- 5.17 The design of anchor groups in accordance with ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable, is valid for screw anchors with a thread length of at least 80 percent of the nominal embedment depth. Anchors with a thread length less than 80 percent of the nominal embedment depth shall be designed as single anchors.

- 5.18 Use of the Tapcon+ Screw Anchors and SAMMYS Anchors with blue Climaseal[®] coating as described in Sections 3.1 and 3.2 must be limited to dry, interior locations.
- 5.19 Use of the 1/2-inch diameter Tapcon+ Screw Anchors with mechanically galvanized zinc coating in accordance with ASTM B695 as described in Section 3.1 is permitted for exterior exposure or damp environments, and for interior locations where anchors are in contact with preservative-treated and fire-retardant-treated wood.
- 5.20 Special inspection must be provided in accordance with Section 4.4 of the report.
- 5.21 Anchors are manufactured in the U.S.A. under an approved quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Mechanical Anchors in Concrete Elements AC193 \(24\)](#), published April 2025; and quality-control documentation.

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3699) along with the name, registered trademark, or registered logo of the report holder or listee must be included in the product label.
- 7.2 Additionally, the Tapcon+ Screw Anchors and SAMMYS Anchors are identified by packaging labeled with the manufacturer's name (ITW Red Head, ITW Buildex, or ITW Brands), contact information, anchor name and anchor size. The Red Head logo or "BX" logo, and a length identification code letter are stamped on the head of each anchor. See the length identification system illustrated in [Figure 2](#) of this report.
- 7.3 The report holder's contact information is the following:

ITW RED HEAD
ITW BUILDIX
155 HARLEM AVENUE
GLENVIEW, ILLINOIS 60025
(800) 848-5611
www.itw-redhead.com
techsupport@itwccna.com

- 7.4 The Additional Listee's contact information is the following:

ITW BRANDS
155 HARLEM AVENUE
GLENVIEW, ILLINOIS 60025
(877) 489-2726
www.itwbrands.com

TABLE A—PRODUCT IDENTIFICATION CROSS REFERENCE BY MANUFACTURER

PRODUCT REFERENCE PER ICC-ES ESR-3699	ITW RED HEAD	ITW BUILDEX	ITW BRANDS
1/4" SAMMYS for Vertical Rod	Not applicable	1/4" SAMMYS for Vertical Rod Part No. CCST 516	Not applicable
1/4" SAMMYS for Horizontal Rod	Not applicable	1/4" SAMMYS for Horizontal Rod Part No. SW-CCST 516	Not applicable
1/4" Tapcon+ Anchor	1/4" Tapcon+ Anchor	Not applicable	Buidex 5/16" Tapcon+ Anchor
3/8" Tapcon+ Anchor	3/8" Tapcon+ Anchor	Not applicable	Buidex 3/8" Tapcon+ Anchor
1/2" Tapcon+ Anchor	1/2" Tapcon+ Anchor	Not applicable	Buidex 1/2" Tapcon+ Anchor



FIGURE 1—TAPCON+ SCREW ANCHOR WITH ADVANCED THREADFORM TECHNOLOGY

LENGTH MARKING ON ANCHOR HEAD			A	B	C	D	E	F	G	H	I	J
Length of anchor (inches)	From	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
	Up to, but not including	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2

For SI: 1 inch = 25.4 mm.

FIGURE 2—LENGTH IDENTIFICATION SYSTEM



SAMMYS Vertical Threaded Rod Anchor (Model No. CCST 516) with torque-limiting nut driver (#14 Black Nut Driver)

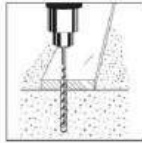
SAMMYS Horizontal Threaded Rod Anchor (Model No. SW-CCST 516) with torque-limiting nut driver (#14 SW Red Nut Driver)

FIGURE 3—SAMMYS SCREW ANCHORS FOR THREADED ROD

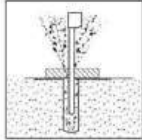


INSTALLATION INSTRUCTIONS FOR TAPCON+ SCREW ANCHORS

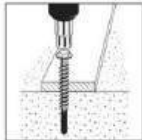
Installation Steps for Concrete, Lightweight Concrete and Metal Deck



1. Using a carbide drill bit, drill a hole at least 1/4" deeper than anchor embedment.



2. Clean hole with pressurized air or vacuum to remove any excess dust/debris.



3. Using an impact or manual wrench, insert anchor into hole and tighten anchor until fully seated.

ANCHOR DIAMETER (inch)	ANSI DRILL BIT DIAMETER (inch) ¹	ANCHOR HEAD (SOCKET SIZE) DIAMETER (inch)	ANCHOR HEAD HEIGHT (inch)	WASHER DIAMETER (inch)	MANUAL WRENCH MAX TORQUE ²	IMPACT WRENCH MAX TORQUE RATING
¹ / ₄ (ITW Red Head Anchor)	¹ / ₄	³ / ₈	0.24	¹ / ₂	20 FT LBS	115 FT LBS
⁵ / ₁₆ (ITW Brands Anchor)	¹ / ₄	³ / ₈	0.24	¹ / ₂	20 FT LBS	115 FT LBS
³ / ₈	³ / ₈	⁹ / ₁₆	0.35	¹³ / ₁₆	50 FT LBS	200 FT LBS
¹ / ₂	¹ / ₂	³ / ₄	0.45	1	70 FT LBS	345 FT LBS

¹ A ¹/₄-inch Tapcon+ drill bit may also be used for installation of the ¹/₄-inch anchor.

² For manual installation, use a torque wrench to verify that the maximum installation torque has not been exceeded.

SAMMYS[®]

Installation Steps for Concrete

1. Using a ¹/₄-inch Tapcon+ drill bit, drill a hole at least ¹/₄-inch deeper than anchor embedment.
2. Clean hole with compressed air or vacuum to remove any excess dust/debris.
3. Insert appropriate torque-limiting nut driver into the drill. See chart below.
4. Insert the anchor into the nut driver, position the anchor into hole and tighten anchor until nut driver spins free on cap of anchor.

Anchor Model	Torque-Limiting Nut Driver (Color)	Installation Orientation	Rod Size (inch)
CCST 516	#14 (Black)	Vertical	3/8
SW-CCST 516	#14 SW (Red)	Horizontal	3/8

FIGURE 4—INSTALLATION INSTRUCTIONS FOR TAPCON+ SCREW ANCHOR AND SAMMYS THREADED ROD ANCHOR

**TABLE 1—INSTALLATION INFORMATION FOR TAPCON+ SCREW ANCHORS
AND SAMMYS THREADED ROD ANCHORS^{1,5}**

Characteristic	Symbol	Units	Nominal Anchor Diameter (inch)									
			1/4		1/4		3/8		1/2			
Head Style	—	—	SAMMYS for Vertical Rod (CCST 516)	SAMMYS for Horizontal Rod (SW-CCST 516)	Hex Head		Hex Head		Hex Head			
Nominal Outside diameter (Shank)	d_a	in.	0.25		0.25		0.38		0.50			
Nominal Outside diameter (threads)	—	in.	0.33		0.33		0.46		0.59			
Drill bit specification	d_{bit}	in.	1/4 Tapcon+ Bit			1/4 Tapcon+ Bit	1/4 ANSI Bit	3/8 ANSI Bit	1/2 ANSI Bit			
Minimum base plate clearance hole diameter	d_h	in.	Not applicable ²			3/8		1/2		5/8		
Maximum installation torque ⁴	$T_{inst, max}$	ft-lbf	Not applicable ³			20		50		70		
Maximum Impact Wrench Torque Rating	$T_{impact, max}$	ft-lbf	Not applicable ³			115		200		345		
Effective embedment depth	h_{ef}	in.	1.67			1.45		1.78		1.32	2.17	3.02
Minimum nominal embedment depth ⁵	h_{nom}	in.	2 1/4			2		2 1/2		2	3	4
Minimum hole depth	h_{hole}	in.	2 1/2			2 1/4		2 3/4		2 1/4	3 1/4	4 1/4
Minimum concrete member thickness	h_{min}	in.	4			4		4		4	6	
Critical edge distance	c_{ac}	in.	2 1/2			2 1/2		4 1/2		3	4	5
Minimum edge distance	c_{min}	in.	1 1/2			1 1/2		1 1/2		2 1/2	1 3/4	2 1/2
Minimum spacing	s_{min}	in.	3			3		3		3	3 1/2	3

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17, ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.

²The Sammys Anchor is installed without a base plate, directly into the concrete.

³Installation must be performed with an ITW torque limiting nut driver, as applicable. See Section 4.3 for additional information.

⁴ $T_{inst, max}$ applies to installations using a calibrated torque wrench.

⁵For the ³/₈-inch-, and ¹/₂-inch-diameter Tapcon+ anchors, the design of anchor groups in accordance with ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable, is only valid for screw anchors with a thread length of at least 80 percent of the nominal embedment depth. Anchors with a thread length less than 80 percent of the nominal embedment depth shall be designed as single anchors.

**TABLE 2—TENSION STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS
AND SAMMYS THREADED ROD ANCHORS¹**

Characteristic	Symbol	Units	Nominal Anchor Diameter (inch)							
			1/4		1/4		3/8	1/2		
Head Style	—	—	SAMMYS for Vertical Rod (CCST 516)	SAMMYS for Horizontal Rod (SW-CCST 516)	Hex Head		Hex Head		Hex Head	
Drill bit specification		in.	1/4 Tapcon+ Bit		1/4 Tapcon+ Bit	1/4 ANSI Bit	3/8 ANSI Bit	1/2 ANSI Bit		
Anchor category	1, 2 or 3	—	1		1	2	1	1		
Effective embedment depth	h_{ef}	in.	1.45 ⁴		1.45		1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4		4		4	4	6	
Critical edge distance	c_{ac}	in.	2 1/2		2 1/2		4 1/2	3	4	5
Data for Steel Strength in Tension										
Minimum specified yield strength	f_y	psi	Not applicable		100,000		100,000	100,000		
Minimum specified ultimate strength	f_{uta}	psi	Not applicable		125,000		125,000	125,000		
Effective tensile stress area	A_{se}	in ²	Not applicable		0.0470		0.098	0.1850		
Steel strength in tension	N_{sa}	lbf	1,822 ⁵		5,900		12,250	23,125		
Strength reduction factor ϕ for tension, steel failure modes ²	ϕ_{sa}	—	0.65		0.65		0.65	0.65		
Data for Concrete Breakout Strength in Tension										
Effectiveness factor - uncracked concrete	k_{uncr}	—	24		24		27	30		
Effectiveness factor - cracked concrete	k_{cr}	—	17		17		17	17		
Modification factor for cracked and uncracked concrete	$\psi_{c,N}$	—	1.0		1.0		1.0	1.0		
Strength reduction factor ϕ for tension, concrete failure modes ²	ϕ_{cb}	—	0.65		0.65	0.55	0.65	0.65		
Data for Pullout Strength in Tension										
Pullout strength, uncracked concrete	$N_{p,uncr}$	lbf	2,107		2,107		See Footnote 3	See Footnote 3		
Pullout strength, cracked concrete	$N_{p,cr}$	lbf	857		857		1,837	See Footnote 3		
Pullout strength for seismic loads	$N_{p,eq}$	lbf	857		857		1,677	See Footnote 3		
Strength reduction factor ϕ for tension, pullout failure modes ²	ϕ_p	—	0.65		0.65	0.55	0.65	See Footnote 3		
Additional Anchor Data										
Axial stiffness in service load range in uncracked concrete	β_{uncr}	lbf /in	385,000		385,000		800,000	800,000		
Axial stiffness in service load range in cracked concrete	β_{cr}	lbf /in	225,000		225,000		365,000	365,000		

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable.

²The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

³Pullout resistance does not govern design and does not need to be considered.

⁴For calculation only. For actual h_{ef} see [Table 1](#).

⁵For the strength between the threaded cap and anchor head.

**TABLE 3—SHEAR STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS
AND SAMMYS THREADED ROD ANCHORS¹**

Characteristic	Symbol	Units	Nominal Anchor Diameter (inch)							
			1/4		1/4		3/8	1/2		
Head Style	—	—	SAMMYS for Vertical Rod (CCST 516)	SAMMYS for Horizontal Rod (SW-CCST 516)	Hex Head		Hex Head	Hex Head		
Drill bit specification		in.	1/4 Tapcon+ Bit		1/4 Tapcon+ Bit	1/4 ANSI Bit	3/8 ANSI Bit	1/2 ANSI Bit		
Anchor category	1, 2 or 3	—	1		1	2	1	1		
Minimum effective embedment depth	h_{ef}	in.	1.45 ⁴		1.45		1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4		4		4	4	6	
Critical edge distance	c_{ac}	in.	2 1/2		2 1/2		4 1/2	3	4	5
Data for Steel Strengths in Shear										
Minimum specified yield strength	f_y	psi	Not applicable		100,000		100,000	100,000		
Minimum specified ultimate strength	f_{uta}	psi	Not applicable		125,000		125,000	125,000		
Effective shear stress area	A_{se}	in ²	Not applicable		0.047		0.098	0.185		
Steel strength in shear - static	V_{sa}	lbf	905 ⁵		2,045		3,621	12,610		
Steel strength in shear - seismic	$V_{sa,eq}$		Not applicable ³		1,350		2,920	9,300		
Strength reduction factor ϕ for shear, steel failure modes ²	ϕ_{sa}	—	0.60		0.60		0.60	0.60		
Data for Concrete Breakout and Concrete Pryout Strengths in Shear										
Nominal Outside diameter (shank)	d_a	in.	0.25		0.25		0.38	0.50		
Load bearing length of anchor	ℓ_e	—	1.67		1.45		1.78	1.32	2.17	3.02
Coefficient for Pryout Strength	κ_{cp}	—	1.0		1.0		1.0	1.0		2.0
Strength reduction factor for shear, concrete breakout ²	ϕ_{cb}	—	0.70		0.70		0.70	0.70		
Strength reduction factor for shear, pryout ²	ϕ_{cp}	—	0.70		0.70		0.70	0.70		

For **SI**: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.

²The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

³The SAMMYS anchors have not been evaluated for seismic shear design under this report.

⁴For calculation only. For actual h_{ef} see [Table 1](#).

⁵For the strength between the threaded cap and anchor head.

**TABLE 4—EXAMPLE ALLOWABLE STRESS DESIGN TENSION VALUES FOR ILLUSTRATIVE PURPOSES
FOR TAPCON+ SCREW ANCHORS AND SAMMYS THREADED ROD ANCHORS** ^{1,2,3,4,5,6,7,8,9}

NOMINAL ANCHOR DIAMETER (inch)	NOMINAL EMBEDMENT DEPTH (inches)	EFFECTIVE EMBEDMENT DEPTH (inches)	ALLOWABLE TENSION LOAD (pounds)
1/4 SAMMYS	2.25	1.45 ¹⁰	800
1/4	2.00	1.45	920
3/8	2.50	1.78	1,335
1/2	2.00	1.32	800
	3.00	2.17	1,685
	4.00	3.02	2,765

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa.

¹Single anchor with static tension load only.

²Concrete determined to remain uncracked for the life of the anchorage.

³Load combination from ACI 318 (-19 and -14) Section 5.3 or ACI 318-11 Section 9.2, as applicable, (no seismic loading).

⁴30 percent dead load and 70 percent live load, controlling load combination 1.2D + 1.6L.

⁵Calculation of weighted average for $\alpha = 0.3 * 1.2 + 0.7 * 1.6 = 1.48$.

⁶Normalweight concrete, $f'_c = 2,500$ psi

⁷ $C_{a1} = C_{a2} > C_{ac}$.

⁸ $h \geq h_{min}$.

⁹Condition B where supplementary reinforcement in accordance with ACI 318-19 17.5.3, ACI 318-14 Section 17.3.4 or ACI 318-11 Section D.4.4, as applicable, is not provided.

¹⁰For calculation only. For actual h_{ef} see [Table 1](#).

Illustrative Procedure to Calculate Allowable Stress Design Tension Value:

Tapcon+ Screw Anchor 1/2-inch diameter, using an embedment of 4-inches, assuming the conditions given in [Table 4](#).

PROCEDURE		CALCULATION
Step 1	Calculate steel strength of a single anchor in tension per ACI 318-19 17.6.1.2, ACI 318-14 17.4.1.2, ACI 318-11 D 5.1.2, Table 2 of this report:	$\phi N_{sa} = \phi N_{sa}$ $= 0.70 * 23,125$ = 15,031 lbs steel strength
Step 2	Calculate concrete breakout strength of a single anchor in tension per ACI 318-19 17.6.2.2, ACI 318-14 17.4.2.2, ACI 318-11 D 5.2.2, Table 2 of this report:	$N_b = k_{uncr} \sqrt{f'_c} h_{ef}^{1.5}$ $= 24 * \sqrt{2,500} * 3.02^{1.5}$ $= 6,298$ lbs $\phi N_{cb} = \phi A_{NC} / A_{NCO} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ $= 0.65 * 1.0 * 1.0 * 1.0 * 6,298$ $= 0.65 * 6,298$ = 4,093 lbs concrete breakout strength
Step 3	Calculate pullout strength per Table 2 of this report:	$\phi N_{pn} = \phi N_{p,uncr} \psi_{c,P}$ n/a – pullout strength does not control (see Table 2, footnote 4)
Step 4	Determine controlling resistance strength in tension per ACI 318-19 17.5.2, ACI 318-14 17.3.1.1, ACI 318-11 D 4.1.1:	= 4,093 lbs controlling resistance (concrete)
Step 5	Calculate allowable stress design conversion factor for loading condition per ACI 318-19 and ACI 318-14 Section 5.3, or ACI 318-11 Section 9.2:	$\alpha = 1.2D + 1.6L$ $= 1.2(0.3) + 1.6(0.7)$ = 1.48
Step 6	Calculate allowable stress design value per Section 4.2 of this report:	$T_{allowable, ASD} = \phi N_n / \alpha$ $= 4,093 / 1.48$ = 2,765 lbs allowable stress design

FIGURE 5—EXAMPLE DESIGN CALCULATION

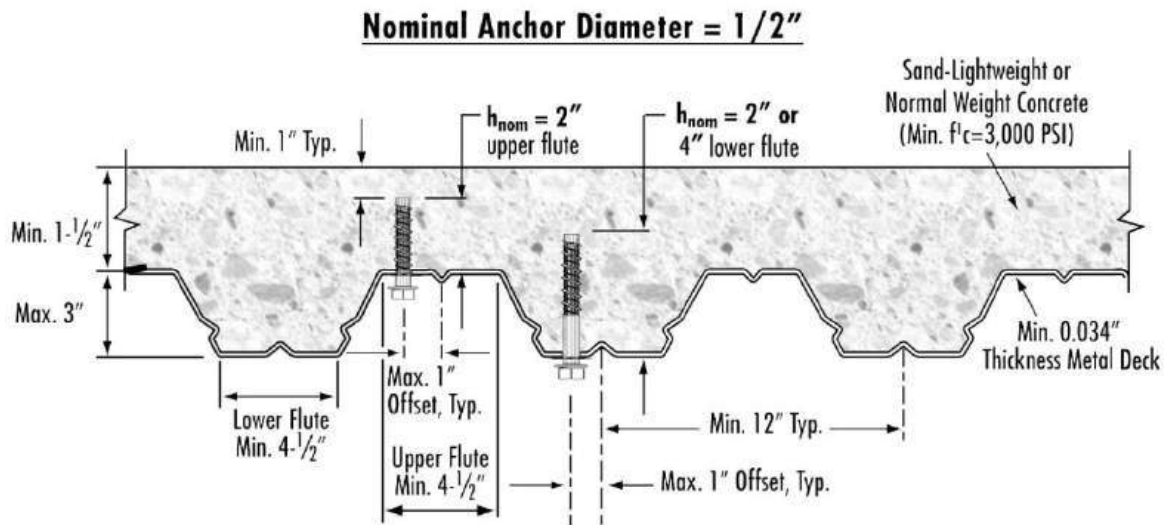


FIGURE 6—TAPCON+ SCREW ANCHOR LOCATED IN THE SOFFIT OF CONCRETE OVER STEEL DECK FLOOR AND ROOF ASSEMBLIES
(1 inch = 25.4 mm)

TABLE 5—TAPCON+ SCREW ANCHOR DESIGN INFORMATION FOR ANCHORS LOCATED IN THE SOFFIT OF CONCRETE OVER STEEL DECK FLOOR AND ROOF ASSEMBLIES^{1,2,3,4,5}

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)		
			1/2		
Location of installation	—	—	Lower Flute		Upper Flute
Minimum hole depth	h_{hole}	in.	2 1/2	4 1/2	2 1/2
Nominal embedment depth	h_{nom}	in.	2	4	2
Minimum effective embedment depth	h_{ef}	in.	1.32	3.02	1.32
Characteristic pullout strength, uncracked concrete over metal deck	$N_{p, deck, uncr}$	lbf	1,720	4,950	2,405
Characteristic pullout strength, cracked concrete over metal deck	$N_{p, deck, cr}$	lbf	975	2,805	1,360
Characteristic shear strength, concrete over metal deck	$V_{sa, deck}$	lbf	3,825	6,130	3,825
Characteristic shear strength - seismic, concrete over metal deck	$V_{sa, deck, eq}$	lbf	2,820	4,520	2,820
Reduction factor for pullout strength in tension	ϕ	—	0.65		
Reduction factor for steel strength in shear	ϕ	—	0.60		

For **SI**: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹Values for $N_{p, dec, uncr}$, $N_{p, dec, cr}$, $V_{sa, deck}$ and $V_{sa, deck, eq}$ apply to sand-lightweight concrete having a minimum concrete compressive strength, f'_c , of 3,000 psi.

²The characteristic pull-out strength for greater concrete compressive strengths shall be increased by multiplying the tabular value by $(f'_c/3,000 \text{ psi})^{0.5}$.

³The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

⁴The minimum anchor spacing along the flute must be the greater of $3h_{ef}$ or 1.5 times the flute width in accordance with Section 4.1.11 of this report.

⁵Installation must comply with [Figure 6](#) of this report.

DIVISION: 03 00 00—CONCRETE**Section: 03 16 00—Concrete Anchors****DIVISION: 05 00 00—METALS****Section: 05 05 19—Post-Installed Concrete Anchors****REPORT HOLDER:****ITW RED HEAD****EVALUATION SUBJECT:****TAPCON+ SCREW ANCHORS AND SAMMYS THREADED ROD ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Tapcon+ Screw Anchors and SAMMYS Threaded Rod Anchors for use in cracked and uncracked concrete, described in ICC-ES evaluation report [ESR-3699](#), have also been evaluated for compliance with the codes noted below as adopted by Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 City of Los Angeles Building Code ([LABC](#))
- 2023 City of Los Angeles Residential Code ([LARC](#))

2.0 CONCLUSIONS

The Tapcon+ Screw Anchors and SAMMYS Threaded Rod Anchors for use in cracked and uncracked concrete, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3699](#), comply with LABC Chapter 19, and LARC, and are subjected to the conditions of use described in this report.

3.0 CONDITIONS OF USE

The Tapcon+ Screw Anchors and SAMMYS Threaded Rod Anchors described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3699](#).
- The design, installation, conditions of use and labeling of the anchors are in accordance with the 2021 *International Building Code*® (IBC) and 2021 *International Residential Code*® (IRC) provisions, as applicable, noted in the evaluation report [ESR-3699](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.
- The allowable and strength design values listed in the evaluation report and tables are for the connection of the anchors to the concrete. The connection between the anchors and the connected members shall be checked for capacity (which may govern).
- For use in wall anchorage assemblies to flexible diaphragm applications, anchors shall be designed per the requirements of City of Los Angeles Information Bulletin P/BC 2023-071.

This supplement expires concurrently with the evaluation report, reissued March 2026.

DIVISION: 03 00 00—CONCRETE

Section: 03 16 00—Concrete Anchors

DIVISION: 05 00 00—METALS

Section: 05 05 19—Post-Installed Concrete Anchors

REPORT HOLDER:

ITW RED HEAD

EVALUATION SUBJECT:

TAPCON+ SCREW ANCHORS AND SAMMYS THREADED ROD ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Tapcon+ screw anchors and SAMMYS threaded rod anchors for use in cracked and uncracked concrete, described in ICC-ES evaluation report [ESR-3699](#), have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Tapcon+ screw anchors and SAMMYS threaded rod anchors for use in cracked and uncracked concrete, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3699](#), comply with CBC Chapter 19, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16 and 17.

2.1.1 OSHPD: The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Tapcon+ screw anchors and SAMMYS threaded rod anchors for use in cracked and uncracked concrete, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3699](#), comply with CRC Section R301.1.3, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16 and 17.

This supplement expires concurrently with the evaluation report, reissued March 2026.

DIVISION: 03 00 00—CONCRETE

Section: 03 16 00—Concrete Anchors

DIVISION: 05 00 00—METALS

Section: 05 05 19—Post-Installed Concrete Anchors

REPORT HOLDER:

ITW RED HEAD

EVALUATION SUBJECT:

TAPCON+ SCREW ANCHORS AND SAMMYS THREADED ROD ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Tapcon+ Screw Anchors and SAMMYS Anchors for Threaded Rods for use in cracked and uncracked concrete, described in ICC-ES evaluation report [ESR-3699](#), have also been evaluated for compliance with the codes noted below.

Compliance with the following codes:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 PURPOSE OF THIS SUPPLEMENT

The Tapcon+ Screw Anchors and SAMMYS Screw Anchors for use in cracked and uncracked concrete, described in Sections 2.0 through 7.0 of the evaluation report, [ESR-3699](#), comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report, [ESR-3699](#) for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or *Florida Building Code—Residential*, as applicable.

Use of the Tapcon+ Screw Anchors and SAMMYS Screw Anchors for use in cracked and uncracked concrete have also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential* with the following condition:

- a) For anchorage of wood members, the connection subject to uplift must be designed for no less than 700 pounds (3114 N) in accordance with Section 2321.7 Item 3 of the *Florida Building Code—Building*.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued March 2026.