

TABLE 1—INSTALLATION INFORMATION FOR TAPCON+ SCREW ANCHORS

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)						
			1/4		3/8		1/2		
Head Style	—	—	Hex Head		Hex Head		Hex Head		
Nominal Outside diameter (Shank)	$d_s$ $(d_o)$	in.	0.25		0.38		0.50		
Nominal Outside diameter (threads)	—	in.	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 <sup>2</sup>		3/8	1/2	5/8		
Maximum installation torque <sup>6</sup>	$T_{inst, max}$	ft-lbf	Not applicable <sup>4</sup>		20	50	70		
Maximum Impact Wrench Torque Rating	$T_{impact, max}$	ft-lbf	Not applicable <sup>4</sup>		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 <sup>8</sup>	$h_{nom}$	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	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

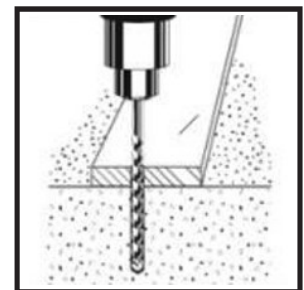
For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.



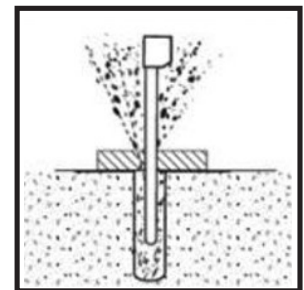
TABLE 2—TENSION STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)						
			1/4		3/8		1/2		
Head Style	—	—	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		2		1		
Effective embedment depth	$h_{ef}$	in.	1.45 <sup>8</sup>		1.45	1.78	1.32	2.17	3.02
Minimum concrete member thickness	$h_{min}$	in.	4		4	4	6		
Critical edge distance	$c_{ac}$	in.	2 1/2		2 1/2	4 1/2	3	4	5
<b>Data for Steel Strength in Tension</b>									
Minimum specified yield strength	$f_y$	psi	Not applicable		100,000	100,000	100,000		
Minimum specified ultimate strength	$f_{ua} (f_u)$ <sup>5</sup>	psi	Not applicable		125,000	125,000	125,000		
Effective tensile stress area	$A_{se}$	in <sup>2</sup>	Not applicable		0.0470	0.098	0.1850		
Steel strength in tension	$N_{sa}$	lbf	1,822 <sup>7</sup>		5,900	12,250	23,125		
Strength reduction factor $\phi$ for tension, steel failure modes <sup>2</sup>	$\phi_{sa}$	—	0.65		0.65	0.65	0.65		
<b>Data for Concrete Breakout Strength in Tension</b>									
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 <sup>3</sup>	$\psi_{c,N} (\psi_c)$ <sup>5</sup>	—	1.0		1.0	1.0	1.0		
Strength reduction factor $\phi$ for tension, concrete failure modes, Condition B <sup>3</sup>	$\phi_{cb}$	—	0.65		0.65	0.55	0.65	0.65	
<b>Data for Pullout Strength in Tension</b>									
Pullout strength, uncracked concrete	$N_{p,uncr}$	lbf	2,107		2,107	See Footnote 4	See Footnote 4		
Pullout strength, cracked concrete	$N_{p,cr}$	lbf	857		857	1,837	See Footnote 4		
Pullout strength for seismic loads	$N_{p,eq}$	lbf	857		857	1,677	See Footnote 4		
Strength reduction factor $\phi$ for tension, pullout failure modes, Condition B <sup>3</sup>	$\phi_p$	—	0.65		0.65	0.55	0.65	See Footnote 4	
<b>Additional Anchor Data</b>									
Axial stiffness in service load range in uncracked concrete	$\beta_{uncr}$	lbf/in	385,000		385,000	800,000	800,000		
Axial stiffness in service load range in cracked concrete	$\beta_{cr}$	lbf/in	225,000		225,000	365,000	365,000		

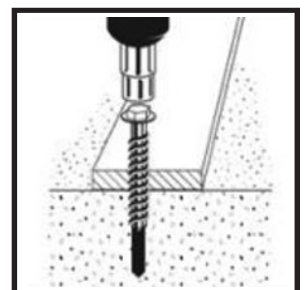
For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.



1



2



3

TABLE 3—SHEAR STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)							
			1/4		3/8		1/2			
Head Style	—	—	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			
Minimum effective embedment depth	$h_{ef}$	in.	1.45 <sup>6</sup>		1.45		1.78	1.32	2.17	3.02
Minimum concrete member thickness	$h_{min}$	in.	4		4		4	6		
Critical edge distance	$c_{ac}$	in.	2 1/2		2 1/2		4 1/2	3	4	5
<b>Data for Steel Strengths in Shear</b>										
Minimum specified yield strength	$f_y$	psi	Not applicable		100,000	100,000	100,000			
Minimum specified ultimate strength	$f_{uta} (f_{ut})^d$	psi	Not applicable		125,000	125,000	125,000			
Effective shear stress area	$A_{se}$	in <sup>2</sup>	Not applicable		0.047	0.098	0.185			
Steel strength in shear - static	$V_{sa}$	lbf	905 <sup>7</sup>		2,045	3,621	12,610			
Steel strength in shear - seismic	$V_{sa,eq}$		Not applicable <sup>5</sup>		1,350	2,920	9,300			
Strength reduction factor $\phi$ for shear, steel failure modes <sup>2</sup>	$\phi_{sa}$	—	0.60		0.60	0.60	0.60			
<b>Data for Concrete Breakout and Concrete Pryout Strengths in Shear</b>										
Nominal Outside diameter (shank)	$d_a (d_o)^d$	in.	0.25		0.25	0.38	0.50			
Load bearing length of anchor	$\ell_e$	—	1.67		1.45	1.78	1.32	2.17	3.02	
Coefficient for Pryout Strength	$\kappa_{cp}$	—	1.0		1.0	1.0	1.0		2.0	
Strength reduction factor for shear, concrete breakout <sup>3</sup>	$\phi_{cb}$	—	0.70		0.70	0.70	0.70			
Strength reduction factor for shear, pryout <sup>3</sup>	$\phi_{cp}$	—	0.70		0.70	0.70	0.70			

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

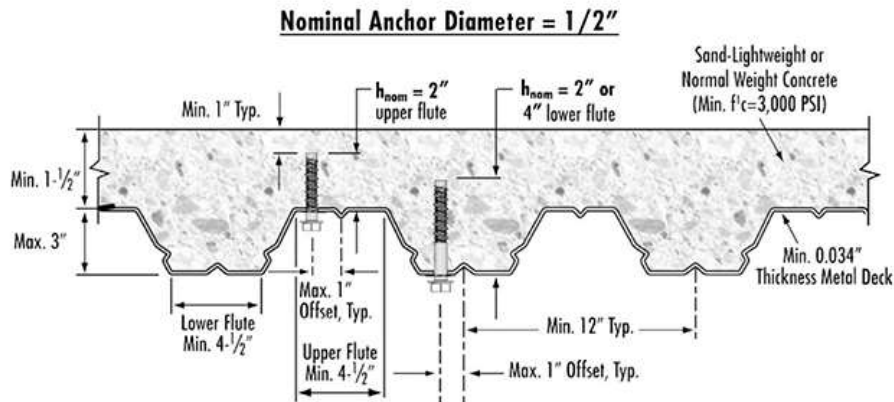


FIGURE 6—TAPCON+ SCREW ANCHOR LOCATED IN THE SOFFIT OF CONCRETE OVER STEEL DECK FLOOR AND ROOF ASSEMBLIES (1 inch = 25.4 mm)