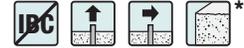


# Tie-Wire Design Information — Concrete

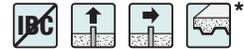
Allowable Tension and Shear Loads for Tie-Wire Anchor in Normal-Weight Concrete



Size in. (mm)	Drill Bit Diameter in.	Embed Depth in. (mm)	Critical End Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load		Shear Load	
					$f'_c \geq 2,500$ psi (17.2 MPa)		$f'_c \geq 2,500$ psi (17.2 MPa)	
					Ultimate lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Allowable lb. (kN)
1/4 (6.4)	1/4	1 1/2 (38)	2 1/2 (64)	5 (127)	1,155 (5.1)	290 (1.3)	380 (1.7)	95 (0.4)

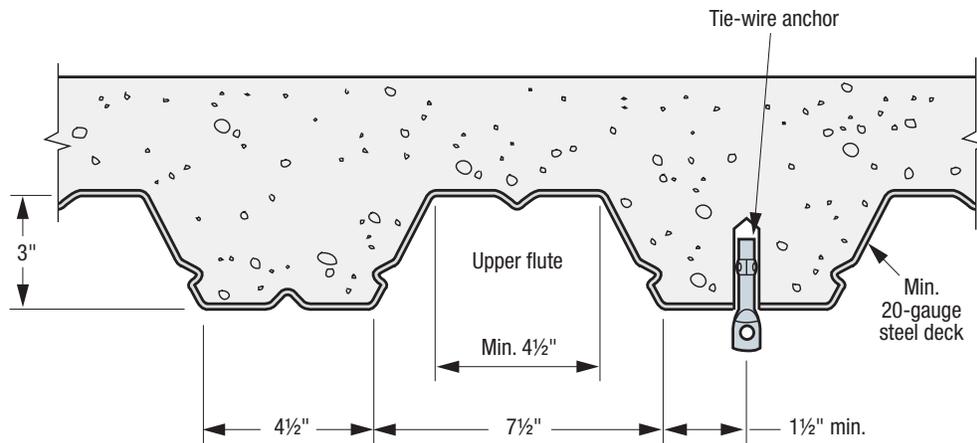
1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete thickness is 1 1/2 times the embedment depth.

Allowable Tension and Shear Loads for Tie-Wire Anchor in the Soffit of Normal-Weight Concrete or Sand-Lightweight Concrete over Metal Deck



Size in. (mm)	Drill Bit Dia in.	Embed Depth in. (mm)	Critical End Dist. <sup>5</sup> in. (mm)	Critical Spacing in. (mm)	Tension Load		Shear Load	
					$f'_c \geq 3,000$ psi (20.7 MPa)		$f'_c \geq 3,000$ psi (20.7 MPa)	
					Ultimate lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Allowable lb. (kN)
1/4 (6.4)	1/4	1 1/2 (38)	2 1/2 (64)	5 (127)	1,155 (5.1)	290 (1.3)	460 (2.0)	115 (0.5)

1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete thickness is 1 1/2 times the embedment depth.
3. Metal deck must be minimum 20-gauge thick with minimum yield strength of 33 ksi.
4. Anchors installed in the bottom flute of the steel deck must have a minimum edge distance of 1 1/2" away from inclined edge of the bottom flute. See the figure below.
5. Critical end distance is defined as the distance from the end of the slab in the direction of the flute.



Installation in the Soffit of Concrete over Metal Deck

\* See p. 13 for an explanation of the load table icons.