



**sliderule**  
engineering works, llc

September 27, 2022

Mr. Kevin Steiner  
President – The Allsports Team  
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Auburn, Washington 98071  
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E-Mail: kevin@allsports-us.com

**THE APPROVED CONSTRUCTION PLANS  
AND ALL ENGINEERING DOCUMENTS MUST  
BE POSTED ON THE JOB AT ALL  
INSPECTIONS IN A VISIBLE AND READILY  
ACCESSIBLE LOCATION.**

**Re: New Level 360, 3500 South Meridian, Unit 950, Puyallup. Washington 98373  
Wall Anchor to Existing Pre-cast Concrete Tilt-up Panels**

Mr. Steiner,

We met with you on September 13, 2022 to review the proposed netting anchor placement for the New Level 360 facility at 3500 South Meridian, Unit 950, Puyallup to review the placement of wall anchors to support the baseball cage netting. We have reviewed the attached proposal for the new cable and anchor locations.

The existing structure is a pre-cast concrete building. The walls are tilt-up concrete panels, metal bar joist roof framing, and metal roof with a shallow concrete foundation most likely based on a pre-loaded site. The concrete tilt-up panels appear to be 5 ½" thick. We would expect the compressive strength of the concrete to be a minimum of 3500 psi and mildly reinforced (a minimum of #4 deformed reinforcing bar placed in the middle of the wall, horizontal and vertical spacing at 12" on center) with more reinforcing at the boundary and edge conditions.

The proposed anchoring system is Simpson Strong-Tie Wedge Anchors (STB2-50512) installed per the manufacturer's specifications and ESR-3037. The anchors will also be epoxied into place using Simpson Set-XP. The epoxy application should be per the manufacturer's specifications and ESR-2508.

The wall thickness (5 ½") and spacing of the anchors meet the manufacturer's minimum criteria and the load capacity wedge anchors (without epoxy) exceeds the demand load of (840 pounds). Allowing for the loading of the netting and incidental live load of a person hanging on the netting we do not expect the demand to exceed the capacity of the proposed wedge anchors.

We believe the anchors as proposed will not be detrimental to the existing concrete wall panels and their lateral and vertical performance demands.

Please call, (206) 380-0732, if you have questions.

Sincerely,  
Sliderule Engineering Works, llc

Andrew L. Herrick, P.E.





## LETTER OF TRANSMITTAL

<b>New Level 360</b> Attn: Dean Pierce  Phone: (253) 606-7828  Email: deancpierce@gmail.com	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Date:</td> <td style="width: 30%;">9/26/22</td> <td style="width: 20%;">Job No.</td> <td style="width: 30%;"></td> </tr> <tr> <td>RE:</td> <td colspan="3"> <b>NEW LEVEL 360</b>  <b>ANCHORS FOR CONCRETE WALL</b>    <b>ATTN: DEAN PIERCE</b>          Transmittal # 01       </td> </tr> </table>	Date:	9/26/22	Job No.		RE:	<b>NEW LEVEL 360</b> <b>ANCHORS FOR CONCRETE WALL</b>  <b>ATTN: DEAN PIERCE</b> Transmittal # 01		
Date:	9/26/22	Job No.							
RE:	<b>NEW LEVEL 360</b> <b>ANCHORS FOR CONCRETE WALL</b>  <b>ATTN: DEAN PIERCE</b> Transmittal # 01								

**We are transmitting the following to you:**      ☒ Enclosed      ☐ Under Separate Cover Via \_\_\_\_\_

☐ Drawings     
 ☐ Plans     
 ☐ Specifications     
 ☒ Product Data     
 ☐ Samples

☐ Copy of Letter   
 ☐ Submittal   
 ☐ Contract     
 ☐ Test Reports/Permits

Material prepared by: \_\_\_\_\_ Kevin Steiner

Copies	Date	Number	Description
			<b>ANCHORS FOR CONCRETE WALLS, Includes,</b>
<b>1</b>	<b>9/28/22</b>		<b>Location of cable anchors for concrete walls</b>
			<b>Anchor Detail Drawing</b>
			<b>Product Information</b>
			<b>Simpson Strong Bolt 2 Wedge Anchor STB2-50512</b>
			<b>Simpson Set-XP Epoxy Adhesive</b>
			<b>3/8" Eye Nut</b>
			<b>3/8" Quick Link</b>
			<b>3/16", 7 x 19 Galvanized Steel Wire Rope Cable</b>

**These are transmitted as checked below:**

- ☒ For Approval  
☐ For your Use  
☐ As requested  
☐ Approved as Submitted  
☐ Approved as Noted  
☐ For Review and Comment  
☐ For your Signature

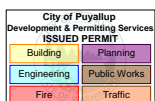
**Remarks:**

FOR APPROVAL

Sent via : EMAIL

Signed: Kevin Steiner

ALLSPORTS US, INC  
 PO BOX 1834  
 AUBURN, WA 98071  
 (206) 933-8987



PRCTI20221551



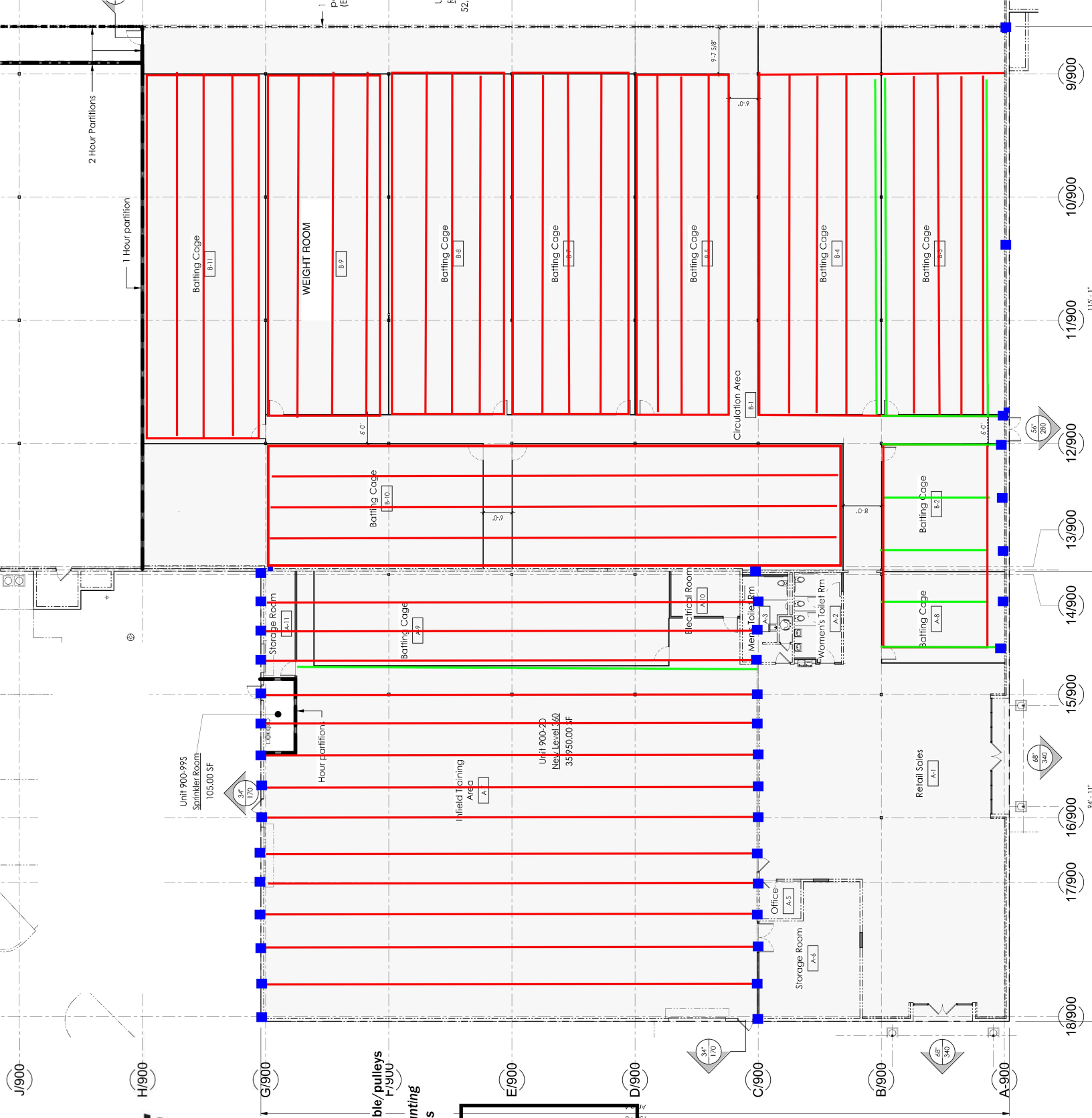
9/28/22

**ALLSPORTS**

- Cable
- Nets on cable/pulleys
- Cable Mounting Locations

**New Level 360**  
**Anchor Locations**  
**Concrete Walls**

**Elevation subject to final**  
**configuration of HVAC**





## New Level 360

### Cable Anchor Detail for Concrete Wall

Cables for netting to be anchored to concrete wall using Simpson STB2-50512, or equal, 1/2" carbon steel wedge anchors and 3/8" eye nuts with 1/2"-13 threads. Epoxy adhesive Simpson Set-XP, or equal, to be added to hole prior to installation of wedge anchor.

Cable end will connect to eye nut with 3/8" quick link.

All components to be installed as per manufacturers instructions and industry standards.

#### Component Information

Typical maximum tension on cable – 275 lbs.

Nominal Pullout Strength Simpson STB2-50512: 4,985 lbs.

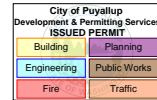
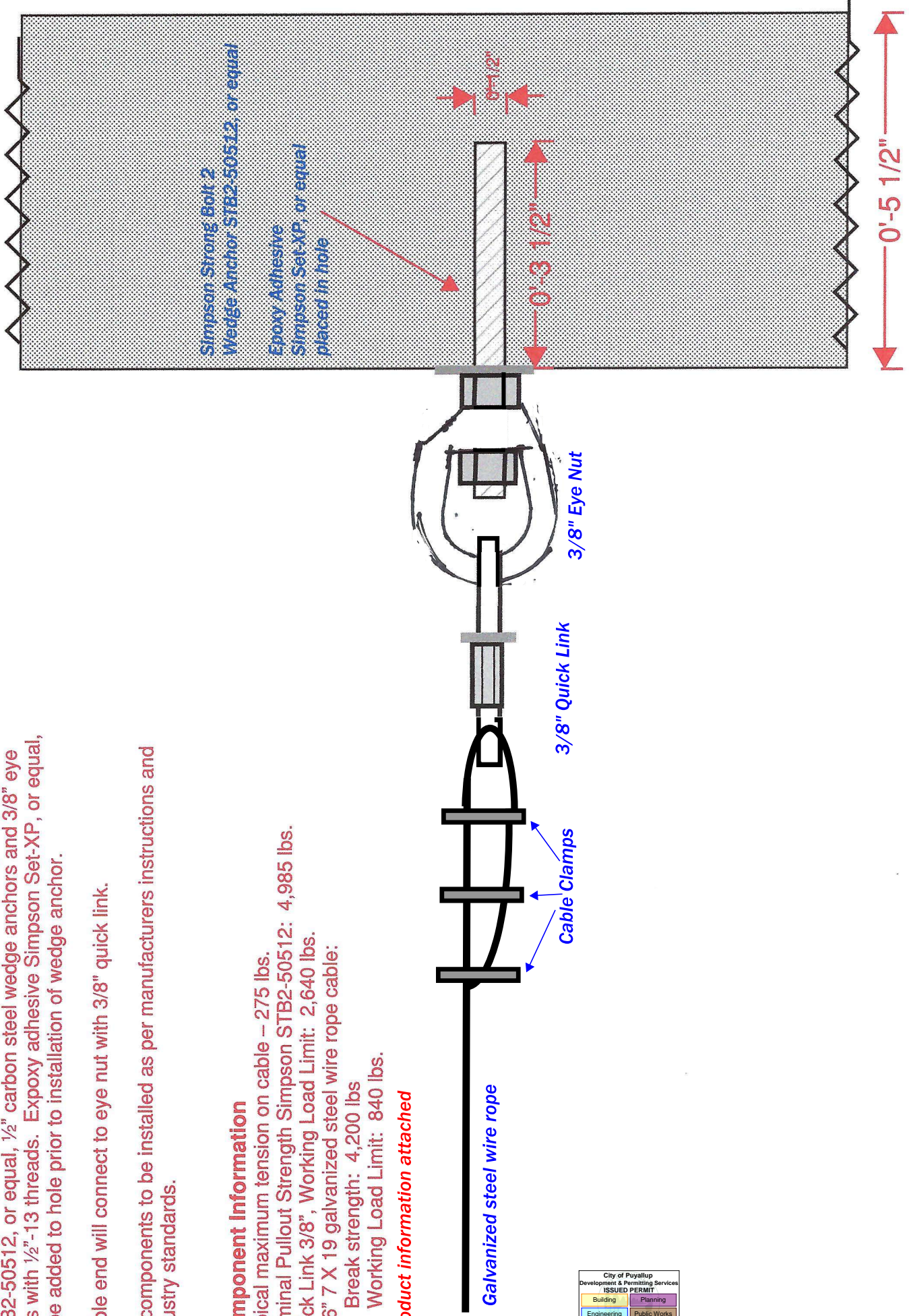
Quick Link 3/8", Working Load Limit: 2,640 lbs.

3/16" 7 X 19 galvanized steel wire rope cable:

Break strength: 4,200 lbs

Working Load Limit: 840 lbs.

*Product information attached*



PRCTI20221551



# Strong-Bolt® 2 Wedge Anchor

Code listed for cracked and uncracked concrete, and masonry applications, the Strong-Bolt 2 wedge-type expansion anchor is an optimal choice for high-performance even in seismic and high-wind conditions. Dual undercutting embossments on each clip segment enable secondary expansion should a crack form and intersect the anchor location; this feature significantly increases the ability of Strong-Bolt 2 to carry load if the hole expands.


## Features

- Chamfered top designed to prevent mushrooming during installation
- Qualified for static and seismic loading conditions (seismic design categories A through F)
- Suitable for horizontal, vertical and overhead applications
- Qualified for minimum concrete thickness of 3¼", and lightweight concrete-over-steel deck thickness of 2½" and 3¼"
- Standard (ANSI) fractional sizes: fits standard fixtures and installs with common drill bit and tool sizes
- Tested per ACI355.2 and AC193

**Material:** Zinc-plated carbon steel or stainless steel (Type 304; Type 316)

**Codes:** ICC-ES ESR-3037 (concrete);  
IAPMO UES ER-240 (carbon steel in CMU);  
City of LA Supplement within ESR-3037 (concrete);  
City of LA Supplement within ER-240 (carbon steel in CMU);  
Florida FL15730 (concrete); FL16230 (masonry);  
UL File Ex3605;  
FM 3043342 and 3047639;  
Multiple DOT listings; meets the requirements of  
Federal Specifications A-A-1923A, Type 4

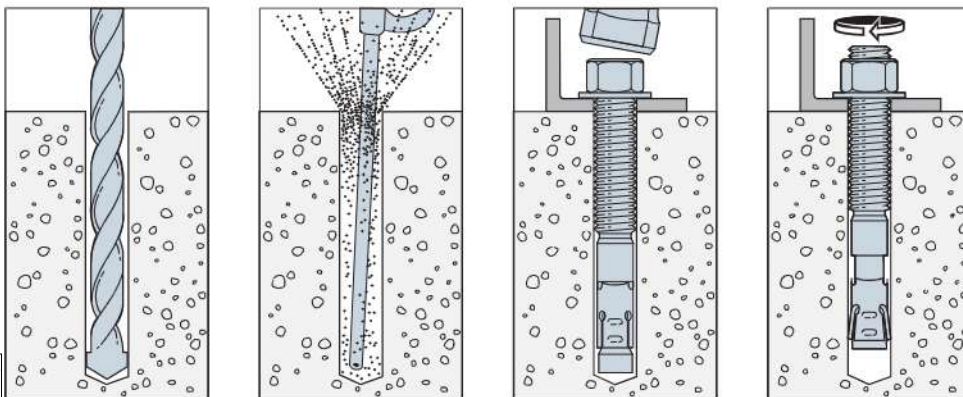
## Installation

 Do not use an impact wrench to set or tighten the Strong-Bolt 2 anchor.

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

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

## Installation Sequence



**Strong-Bolt 2  
Wedge Anchor**



### Head Stamp

The head is stamped with the length identification letter, bracketed top and bottom by horizontal lines.

# Strong-Bolt® 2 Wedge Anchor

## Material Specifications

Anchor Body	Nut	Washer	Clip
Carbon Steel (Zinc Plated)	Carbon Steel, ASTM A 563, Grade A	Carbon Steel ASTM F844	Carbon Steel, ASTM A 568
Type 304 Stainless Steel	Type 304 Stainless Steel	Type 304 Stainless Steel	Type 304 or 316 Stainless Steel
Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel

## Strong-Bolt 2 Anchor Installation Data

Strong-Bolt 2 Diameter (in.)	¼	⅜	½	⅝	¾	1
Drill Bit Size (in.)	¼	⅜	½	⅝	¾	1
Min. Fixture Hole (in.)	⅝	⅞	1	1 ⅛	1 ¼	1 ½
Wrench Size (in.)	⅞	1	1 ¼	1 ½	1 ¾	2
Concrete Installation Torque (ft.-lbf.) Carbon Steel	4	30	60	90	150	230
Concrete Installation Torque (ft.-lbf.) Stainless Steel	4	30	65	80	150	—

## Length Identification Head Marks on Strong-Bolt® 2 Wedge Anchors (corresponds to length of anchor – inches)

Mark	Units	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
From	in.	1 ½	2	2 ½	3	3 ½	4	4 ½	5	5 ½	6	6 ½	7	7 ½	8	8 ½	9	9 ½	10	11	12	13	14	15	16	17	18
Up To But Not Including	in.	2	2 ½	3	3 ½	4	4 ½	5	5 ½	6	6 ½	7	7 ½	8	8 ½	9	9 ½	10	11	12	13	14	15	16	17	18	19

## Strong-Bolt® 2 Wedge Anchor

## Strong-Bolt 2 Anchor Product Data

Mechanical Anchors

Size (in.)	Zinc-Plated Carbon Steel Model No.	Type 304 Stainless Steel Model No.	Type 316 Stainless Steel Model No.	Drill Bit Diameter (in.)	Thread Length (in.)	Quantity	
						Box	Carton
¼ x 1¾	STB2-25134	STB2-251344SS	STB2-251346SS	¼	1½	100	500
¼ x 2¼	STB2-25214	STB2-252144SS	STB2-252146SS	¼	1¾	100	500
¼ x 3¼	STB2-25314	STB2-253144SS	STB2-253146SS	¼	2¾	100	500
⅜ x 2¾	STB2-37234	STB2-372344SS	STB2-372346SS	⅜	1½	50	250
⅜ x 3	STB2-37300	STB2-373004SS	STB2-373006SS	⅜	1¾	50	250
⅜ x 3½	STB2-37312	STB2-373124SS	STB2-373126SS	⅜	2¼	50	250
⅜ x 3¾	STB2-37334	STB2-373344SS	STB2-373346SS	⅜	2½	50	250
⅜ x 5	STB2-37500	STB2-375004SS	STB2-375006SS	⅜	3¾	50	200
⅜ x 7	STB2-37700	STB2-377004SS	STB2-377006SS	⅜	5¾	50	200
½ x 3¾	STB2-50334	STB2-503344SS	STB2-503346SS	½	2¼	25	125
½ x 4¼	STB2-50414	STB2-504144SS	STB2-504146SS	½	2¾	25	100
½ x 4¾	STB2-50434	STB2-504344SS	STB2-504346SS	½	3¼	25	100
½ x 5½	STB2-50512	STB2-505124SS	STB2-505126SS	½	3¼	25	100
½ x 7	STB2-50700	STB2-507004SS	STB2-507006SS	½	5¾	25	100
½ x 8½	STB2-50812	STB2-508124SS	STB2-508126SS	½	6	25	50
½ x 10	STB2-50100	STB2-501004SS	STB2-501006SS	½	6	25	50
⅝ x 4½	STB2-62412	STB2-624124SS	STB2-624126SS	⅝	2¾	20	80
⅝ x 5	STB2-62500	STB2-625004SS	STB2-625006SS	⅝	2½	20	80
⅝ x 6	STB2-62600	STB2-626004SS	STB2-626006SS	⅝	3½	20	80
⅝ x 7	STB2-62700	STB2-627004SS	STB2-627006SS	⅝	4½	20	80
⅝ x 8½	STB2-62812	STB2-628124SS	STB2-628126SS	⅝	6	20	40
⅝ x 10	STB2-62100	STB2-621004SS	STB2-621006SS	⅝	6	10	20
¾ x 5½	STB2-75512	STB2-755124SS	STB2-755126SS	¾	3¾	10	40
¾ x 6¼	STB2-75614	STB2-756144SS	STB2-756146SS	¾	3½	10	40
¾ x 7	STB2-75700	STB2-757004SS	STB2-757006SS	¾	4½	10	40
¾ x 8½	STB2-75812	STB2-758124SS	STB2-758126SS	¾	6	10	20
¾ x 10	STB2-75100	—	—	¾	6	10	20
1 x 7	STB2-100700	—	—	1	3½	5	20
1 x 10	STB2-1001000	—	—	1	3½	5	10
1 x 13	STB2-1001300	—	—	1	3½	5	10



# Strong-Bolt® 2 Design Information — Concrete

## Carbon-Steel Strong-Bolt 2 Installation Information and Additional Data<sup>1</sup>



Characteristic	Symbol	Units	Nominal Anchor Diameter, $d_a$ (in.)												
			$\frac{1}{4}$ <sup>4</sup>	$\frac{3}{8}$ <sup>5</sup>	$\frac{1}{2}$ <sup>5</sup>			$\frac{5}{8}$ <sup>5</sup>		$\frac{3}{4}$ <sup>5</sup>		$1$ <sup>5</sup>			
Installation Information															
Nominal Diameter	$d_a$	in.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$			$\frac{5}{8}$		$\frac{3}{4}$		1			
Drill Bit Diameter	$d$	in.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$			$\frac{5}{8}$		$\frac{3}{4}$		1			
Baseplate Clearance Hole Diameter <sup>2</sup>	$d_C$	in.	$\frac{5}{16}$	$\frac{7}{16}$	$\frac{9}{16}$			$\frac{11}{16}$		$\frac{7}{8}$		$1\frac{1}{8}$			
Installation Torque	$T_{inst}$	ft-lbf	4	30	60			90		150		230			
Nominal Embedment Depth	$h_{nom}$	in.	$1\frac{3}{4}$	$1\frac{7}{8}$	$2\frac{7}{8}$	$2\frac{3}{4}$	$3\frac{7}{8}$	$3\frac{3}{8}$	$5\frac{1}{8}$	$4\frac{1}{8}$	$5\frac{3}{4}$	$5\frac{1}{4}$	$9\frac{3}{4}$		
Effective Embedment Depth	$h_{ef}$	in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{4}$	$3\frac{3}{8}$	$2\frac{3}{4}$	$4\frac{1}{2}$	$3\frac{3}{8}$	5	$4\frac{1}{2}$	9		
Minimum Hole Depth	$h_{hole}$	in.	$1\frac{7}{8}$	2	3	3	$4\frac{1}{8}$	$3\frac{5}{8}$	$5\frac{3}{8}$	$4\frac{3}{8}$	6	$5\frac{1}{2}$	10		
Minimum Overall Anchor Length	$\ell_{anch}$	in.	$2\frac{1}{4}$	$2\frac{3}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	$5\frac{1}{2}$	$4\frac{1}{2}$	6	$5\frac{1}{2}$	7	7	13		
Critical Edge Distance	$c_{ac}$	in.	$2\frac{1}{2}$	$6\frac{1}{2}$	6	6	$7\frac{1}{2}$	$7\frac{1}{2}$	9	9	8	18	$13\frac{1}{2}$		
Minimum Edge Distance	$c_{min}$	in.	$1\frac{3}{4}$	6		6	4	4	$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$	8			
	for $s \geq$	in.	—	—		6	4	4	—	5	5	8			
Minimum Spacing	$s_{min}$	in.	$2\frac{1}{4}$	3		$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	5	$2\frac{3}{4}$	$2\frac{3}{4}$	7			
	for $c \geq$	in.	—	—		12	12	12	—	8	8	8			
Minimum Concrete Thickness	$h_{min}$	in	$3\frac{1}{4}$	$3\frac{1}{4}$	$4\frac{1}{2}$	4	$5\frac{1}{2}$	6	$5\frac{1}{2}$	6	$7\frac{7}{8}$	$6\frac{3}{4}$	$8\frac{3}{4}$	9	$13\frac{1}{2}$
Additional Data															
Yield Strength	$f_{ya}$	psi	56,000	92,000		85,000					70,000			60,000	
Tensile Strength	$f_{uta}$	psi	70,000			115,000					110,000			78,000	
Minimum Tensile and Shear Stress Area	$A_{se}$	in. <sup>2</sup>	0.0318	0.0514		0.105			0.166			0.270		0.472	
Axial Stiffness in Service Load Range — Cracked and Uncracked Concrete	$\beta$	lb./in.	73,700 <sup>3</sup>	34,820		63,570			91,370			118,840		299,600	

- The information 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.
- The clearance must comply with applicable code requirements for the connected element.
- The tabulated value of  $\beta$  for  $\frac{1}{4}$ "-diameter carbon steel Strong-Bolt 2 anchor is for installations in uncracked concrete only.
- The  $\frac{1}{4}$ "-diameter (6.4 mm) anchor may be installed in top of uncracked normal-weight and sand-lightweight concrete over profile steel deck, where concrete thickness above upper flute meets the minimum thickness specified in this table.
- The  $\frac{3}{8}$ "- through 1"-diameter (9.5 mm through 25.4 mm) anchors may be installed in top of cracked and uncracked normal-weight and sand-lightweight concrete over profile steel deck, where concrete thickness above upper flute meets the minimum thickness specified in this table for  $\frac{3}{8}$ "- through 1"-diameter anchors and in the table on p. 117 for  $\frac{3}{8}$ "- and  $\frac{1}{2}$ "- diameter anchors.

# Strong-Bolt® 2 Design Information — Concrete

## Carbon-Steel Strong-Bolt 2 Tension Strength Design Data<sup>1</sup>



Characteristic	Symbol	Units	Nominal Anchor Diameter, $d_a$ (in.)																								
			$\frac{1}{4}^a$			$\frac{3}{8}^a$			$\frac{1}{2}^a$		$\frac{5}{8}^a$		$\frac{3}{4}^a$		$1^a$												
Anchor Category	1, 2 or 3	—							1						2												
Nominal Embedment Depth	$h_{nom}$	in.	1 $\frac{3}{4}$		1 $\frac{7}{8}$		2 $\frac{7}{8}$		2 $\frac{3}{4}$		3 $\frac{7}{8}$		3 $\frac{3}{8}$		5 $\frac{1}{8}$		4 $\frac{1}{8}$		5 $\frac{3}{4}$		5 $\frac{1}{4}$		9 $\frac{3}{4}$				
Steel Strength in Tension (ACI 318-14 Section 17.4.1 or ACI 318-11 Section D.5.1)																											
Steel Strength in Tension	$N_{sa}$	lb.	2,225			5,600			12,100		19,070				29,700				36,815								
Strength Reduction Factor — Steel Failure <sup>2</sup>	$\phi_{sa}$	—							0.75						0.65												
Concrete Breakout Strength in Tension (ACI 318-14 Section 17.4.2 or ACI 318-11 Section D.5.2)																											
Effective Embedment Depth	$h_{ef}$	in.	1 $\frac{1}{2}$		1 $\frac{1}{2}$		2 $\frac{1}{2}$		2 $\frac{1}{4}$		3 $\frac{3}{8}$		2 $\frac{3}{4}$		4 $\frac{1}{2}$		3 $\frac{3}{8}$		5		4 $\frac{1}{2}$		9				
Critical Edge Distance	$c_{ac}$	in.	2 $\frac{1}{2}$		6 $\frac{1}{2}$		6		6 $\frac{1}{2}$		7 $\frac{1}{2}$		7 $\frac{1}{2}$		9		9		8		18		13 $\frac{1}{2}$				
Effectiveness Factor — Uncracked Concrete	$k_{uncr}$	—							2																		
Effectiveness Factor — Cracked Concrete	$k_{cr}$	—	$\frac{1}{\sqrt{c_{ac}}}$												17												
Modification Factor	$\psi_{c,N}$	—	$\frac{1}{\sqrt{c_{ac}}}$												1.00												
Strength Reduction Factor — Concrete Breakout Failure <sup>3</sup>	$\phi_{cb}$	—							0.65						0.55												
Pullout Strength in Tension (ACI 318-14 17.4.3.1 or ACI 318-11 Section D.5.3)																											
Pullout Strength, Cracked Concrete ( $f'_c = 2,500$ psi)	$N_{p,cr}$	lb.	$\frac{1}{\sqrt{c_{ac}}}$			1,300 <sup>5</sup>			2,775 <sup>5</sup>			N/A <sup>4</sup>		4,985 <sup>5</sup>		N/A <sup>4</sup>		6,895 <sup>5</sup>		N/A <sup>4</sup>		8,500 <sup>5</sup>		7,700 <sup>5</sup>		11,185 <sup>5</sup>	
Pullout Strength, Uncracked Concrete ( $f'_c = 2,500$ psi)	$N_{p,uncr}$	lb.	N/A <sup>4</sup>			N/A <sup>4</sup>			3,340 <sup>5</sup>			3,615 <sup>5</sup>		5,255 <sup>5</sup>		N/A <sup>4</sup>		9,025 <sup>5</sup>		7,115 <sup>5</sup>		8,870 <sup>5</sup>		8,360 <sup>5</sup>		9,690 <sup>5</sup>	
Strength Reduction Factor — Pullout Failure <sup>6</sup>	$\phi_p$	—							0.65						0.55												
Tensile Strength for Seismic Applications (ACI 318-14 Section 17.2.3.3 or ACI 318-11 Section D3.3.3)																											
Nominal Pullout Strength for Seismic Loads ( $f'_c = 2,500$ psi)	$N_{p,eq}$	lb.	$\frac{1}{\sqrt{c_{ac}}}$			1,300 <sup>5</sup>			2,775 <sup>5</sup>			N/A <sup>4</sup>		4,985 <sup>5</sup>		N/A <sup>4</sup>		6,895 <sup>5</sup>		N/A <sup>4</sup>		8,500 <sup>5</sup>		7,700 <sup>5</sup>		11,185 <sup>5</sup>	
Strength Reduction Factor — Pullout Failure <sup>6</sup>	$\phi_{eq}$	—							0.65						0.55												

- The information presented in this table must be used in conjunction with the design criteria of ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable, except as modified below.
- The tabulated value of  $\phi_{sa}$  applies when the load combinations of Section 1605.2.1 of the IBC, ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2 are used. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of  $\phi_{sa}$  must be determined in accordance with ACI 318-11 D.4.4.
- The tabulated value of  $\phi_{cb}$  applies when both the load combinations of Section 1605.2.1 of the IBC, ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2 are used and the requirements of ACI 318-14 17.3.3(c) or ACI 318-11 D.4.3(c) for Condition B are met. Condition B applies where supplementary reinforcement is not provided. For installations where complying supplementary reinforcement can be verified, the  $\phi_{cb}$  factors described in ACI 318-14 17.3.3(c) or ACI 318-11 D.4.3(c) for Condition A are allowed. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of  $\phi_{cb}$  must be determined in accordance with ACI 318-11 D.4.4(c).
- N/A (not applicable) denotes that pullout resistance does not need to be considered.
- The characteristic pullout strength for greater concrete compressive strengths shall be increased by multiplying the tabular value by  $(f'_c/2,500 \text{ psi})^{0.5}$ .
- The tabulated value of  $\phi_p$  or  $\phi_{eq}$  applies when the load combinations of Section 1605.2.1 of the IBC, ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2 are used and the requirements of ACI 318-14 17.3.3(c) or ACI 318-11 D.4.3(c) for Condition B are met. If the load combinations of ACI 318-11 Appendix C are used, appropriate value of  $\phi$  must be determined in accordance with ACI 318-11 Section D.4.4(c).
- The 1/4"-diameter carbon steel Strong-Bolt 2 anchor installation in cracked concrete is beyond the scope of this table.
- The 1/2"-diameter (6.4 mm) anchor may be installed in top of uncracked normal-weight and sand-lightweight concrete over profile steel deck, where concrete thickness above upper flute meets the minimum thickness specified in the table on p. 111.
- The 3/8"- through 1"-diameter (9.5 mm through 25.4 mm) anchors may be installed in top of cracked and uncracked normal-weight and sand-lightweight concrete over profile steel deck, where concrete thickness above upper flute meets the minimum thickness specified in the table on p. 111 and in the table on p. 117 for the 3/8"- and 1/2"-diameter anchors.

# SET-XP® High-Strength Epoxy Adhesive



## Epoxy Anchoring Adhesives



This product's information may differ depending on the category of use. You are currently viewing details related to **Epoxy Anchoring Adhesives**. You can also view product information related to the category: [Strong-Rod® URS Components](#)

## Product Details

SET-XP is an epoxy-based high-strength anchoring adhesive. SET-XP is a 1:1 ratio, two-component anchoring adhesive for anchoring and doweling into concrete (cracked and uncracked) and masonry (uncracked) applications.

## Key Features

- Design flexibility — permitted for sustained load performance at elevated temperature.
- Jobsite versatility — can be specified for dry and damp conditions when in-service temperatures range from -40°F (-40°C) to 150°F (65°C).
- Recognized per AC308 to be used for rebar development and splice length design provisions of ACI 318.
- Approved for installation with vacuum-drill bit system without further hole cleaning. See Code Report (ESR-2508) for approved system.
- Easy hole-cleaning — no power-brushing required.
- Manufactured in the USA using global materials.

Mix Ratio/Type	1:1 epoxy
Mixed Color	Teal
Base Materials	Concrete — cracked and uncracked Masonry — uncracked

On This Page



Base Material Conditions	Dry, water-saturated
Anchor Type	Threaded rod or rebar
Substrate Installation Temperature	50°F (4°C) to 110°F (38°C)
In-Service Temperature Range	-40°F (-40°C) to 150°F (65°C)
Storage Temperature	45°F (7°C) and 90°F (32°C)
Shelf Life	24 months
Volatile Organic Compound (VOC)	3 g/L

## Applications

- Concrete: Cracked
- Concrete Block: Grouted
- Concrete Block: Hollow (UngROUTed)
- Seismic (New Construction)
- Seismic Retrofit
- Water / Wastewater Facilities

## Included Parts



**EMN22i**  
One nozzle  
and  
extension  
included with SET-XP10  
and SET-XP22-N

Model No.	Option	Packaging Qty.	Carton Qty.	Compatible Tools
SET-XP10	8.5 oz. single cartridge Includes (1) EMN22i mixing nozzle and (1) extension	1	12	CDT10S dispensing tool / EMN22i mixing nozzle
SET-XP22-N	22-oz. side-by-side cartridge Includes (1) EMN22i mixing nozzle and (1) extension	1	10	EDT22S, EDTA22P, EDTA22CKT dispensing tools / EMN22i mixing nozzle

Model No.	Option	Packaging Qty.	Carton Qty.	Compatible Tools
SET-XP56	56 oz. side-by-side cartridge (nozzle not included)	1	6	EDTA56P dispensing tool / EMN22i mixing nozzle

## Design Information and Load Tables

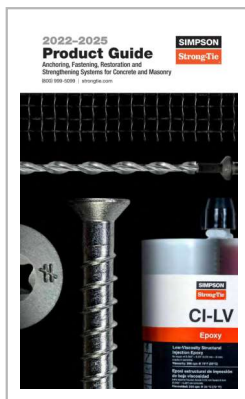
- [SET-XP Design Information](#)

## Related Links

- [Anchoring Systems Technical and Installation Notes](#)
- [Chemical Resistance of Adhesive Anchors](#)
- [Adhesive Cartridge Estimator](#)
- [Anchor Designer™ Software](#)
- [Development Length Rebar Calculator](#)
- [Strong-Rod™ Uplift Restraint System — Anchorage Adhesives](#)
- [OSHA Silica Dust Exposure Provisions](#)
- [Adhesive Anchor Installation Training](#)

## Catalog Pages

- [C-A-2021 \(Anchoring, Fastening and Restoration Systems\), pages 30–43](#)



### 2022–2025 Product Guide — Anchoring, Fastening Systems and Restoration Solutions for Concrete and Masonry

S-A-PG22 — *Product Guide*

A product guide providing information on Simpson Strong-Tie® anchoring adhesives, mechanical anchors, direct fastening, carbide drill bits and restoration products for concrete and masonry.



### Anchoring, Fastening, Restoration and Strengthening Systems for Concrete and Masonry

C-A-2021 — *Catalog*

An informative and comprehensive catalog of products belonging to our anchoring, fastening, restoration and strengthening systems for concrete and masonry.

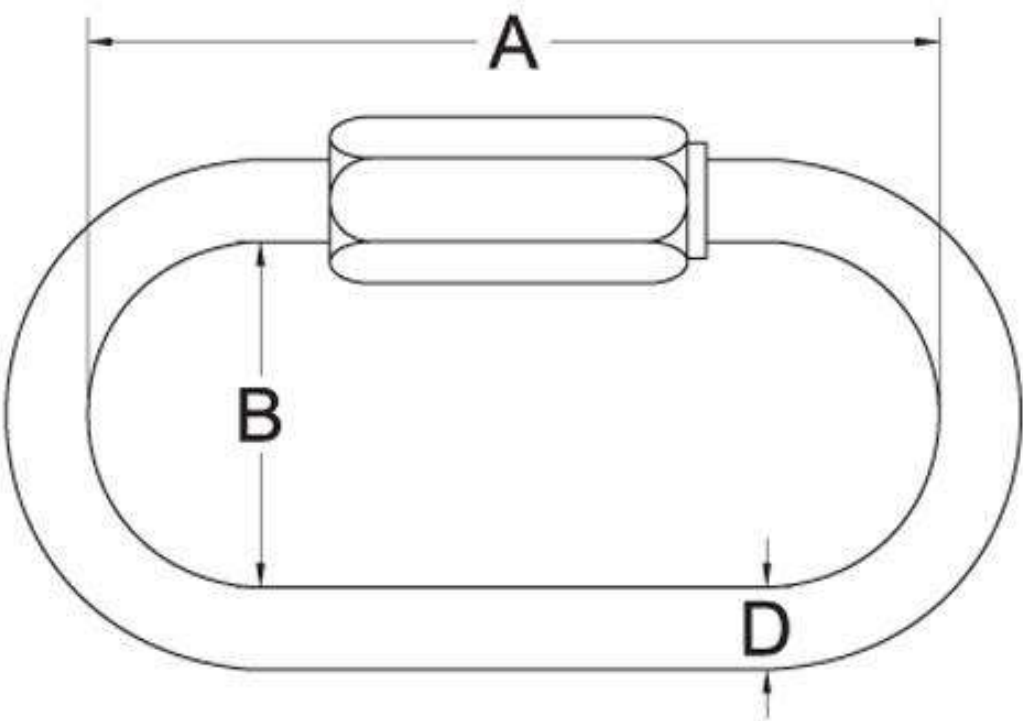
### 3/8" QUICK LINK



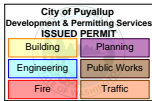
Code Rated	Code Non-rated	Working Load Limit lbs.	Weight / ea. lbs.	Dimensions in.				
				D		A	B	H
				in.	mm			
QLZ-018	70700	220	0.03	1/8	3	1.00	0.335	0.210
QLZ-316	70701	660	0.06	3/16	5	1.40	0.512	0.242
QLZ-014	70702	880	0.09	1/4	6	1.77	0.571	0.290
QLZ-516	70703	1,760	0.18	5/16	8	2.28	0.689	0.420
QLZ-038	70704	2,640	0.28	3/8	10	2.72	0.808	0.500
QLZ-716	70705	2,900	0.48	7/16	11	3.00	0.870	0.493
QLZ-012	70706	3,300	0.70	1/2	12	3.17	0.925	0.510



QLZ-058	70707	6,000	1.16	5/8	16	4.12	1.065	0.800
Safety Factor 2.5 : 1								



Similar products



3/16" 7/19 Galvanized Steel Wire Rope



**Material:** Hot Dip Galvanized Steel Wires

**Working Load Limit (WLL):** 840 lbs

**Minimum Breaking Load (MBL):** 4200 lbs

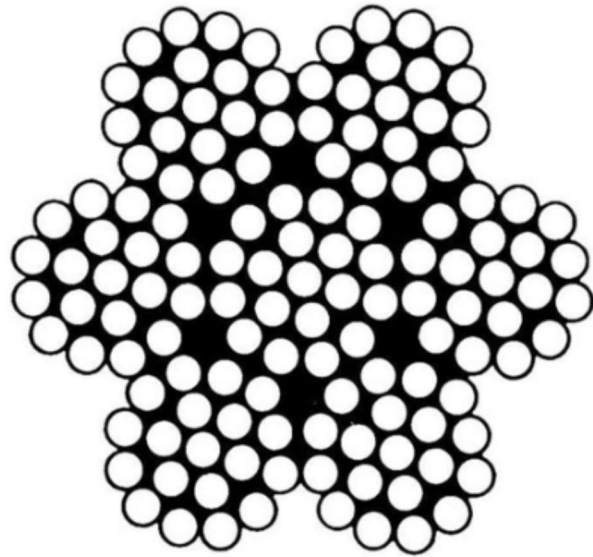
**Size:** 3/16 inch

**Length:** 250 ft

**Standard Reel Size (Flange Diameter x Height):** 9.84 x 5.12 inches

**Weight:** 16.9 lbs

Spec Sheet



Name	Value
Length:	250 ft
Cable Diameter:	3/16 inches
WLL (5:1):	840 lbs
Breaking Load:	4200 lbs
Weight (per foot):	0.065 lbs