



# WORLD LEADER IN HELICAL PILES



Second Edition



- Certifications
- Helical Piles
- Extensions

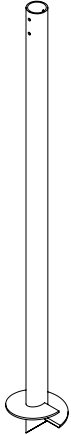












- Pile Caps
- Foundation Repair Brackets
- Installation Equipment










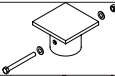
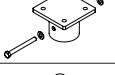












SPEC BOOK  
Second Edition





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Techno Metal Post (TMP) was founded in Canada in 1993. Through the founders vision, dedication, and hard work, TMP has grown from a local family business to a worldwide network of more than 150 professionally trained and certified dealers. Along with this network expansion and progress, Techno Metal Post has remained at the forefront of cutting-edge technology in the design and manufacturing of helical piles and installation equipment for 30 years. TMP helical piles are engineered and tested to the highest quality standards; guaranteed and proven to be durable even in the most challenging soil conditions. TMP designs and builds some of the most versatile, state-of-the-art proprietary installation equipment in the world. As a result of our innovative technology and our far-reaching network of dealers, Techno Metal Post has quickly become the world leader in helical piles.

## QUALITY MANUFACTURING

### PILES

In an era where many companies choose to source their raw materials from Asia, the Techno Metal Post team is committed to purchasing North American steel for helical piles manufacturing. Techno Metal Post helical piles are manufactured using structural steel according to ASTM A500 grade C, CSA G40.21-44W. They are also welded according to CSA W47.1 standard. They can be hot-dipped galvanized according to ASTM A123. The piles have been load tested according to ASTM standards in a variety of soil types around the world. The piles are designed to resist axial, lateral, and bending moment loads. The use of the helix maximizes the load bearing capacity of soil.

### CONNECTION SYSTEM

Different types of structures require different pile caps and brackets. For post structures like decks, we offer a variety of pile caps for standard dimensional lumber sizes. Techno Metal Post has also developed new construction pile caps. We also offer a line of foundation repair brackets. Techno Metal Post can also make custom brackets upon request, for special types of connections.

### INSTALLATION EQUIPMENT

Techno Metal Post recognizes that its investment in the production of its own line of equipment, for the sole purpose of installing helical piles, is one of many advantages over other companies.

Because every helical pile project is different, TMP produces three machines varying in size, power, and capabilities; each of which is specially made for helical pile installations. Every machine is designed to deliver an accurate and reliable job and built to precisely measure the torque produced during the installation process. From this information, our certified installers know the allowable load capacities of each helical pile after its installation.

### QUALITY MANUFACTURING BACKED BY INSTALLATION EXPERIENCE

Behind Techno Metal Post's quality product, there is a quality control for the installation of the product as well. Professionally trained certified installers and highly specialized, skilled engineers ensure the proper installation of TMP's helical pile foundation system.

### DEALER-INSTALLERS

New dealers and installers undergo a thorough and substantial hands-on training, equipping them with the skills and knowledge to succeed in their projects. Over the past 30 years, our dealers and installers have completed over 3 million pile installations for projects throughout the world. They have installed helical piles in almost every soil type that exists throughout Canada, the United States, Europe, the Caribbean, French Polynesia and New Zealand.

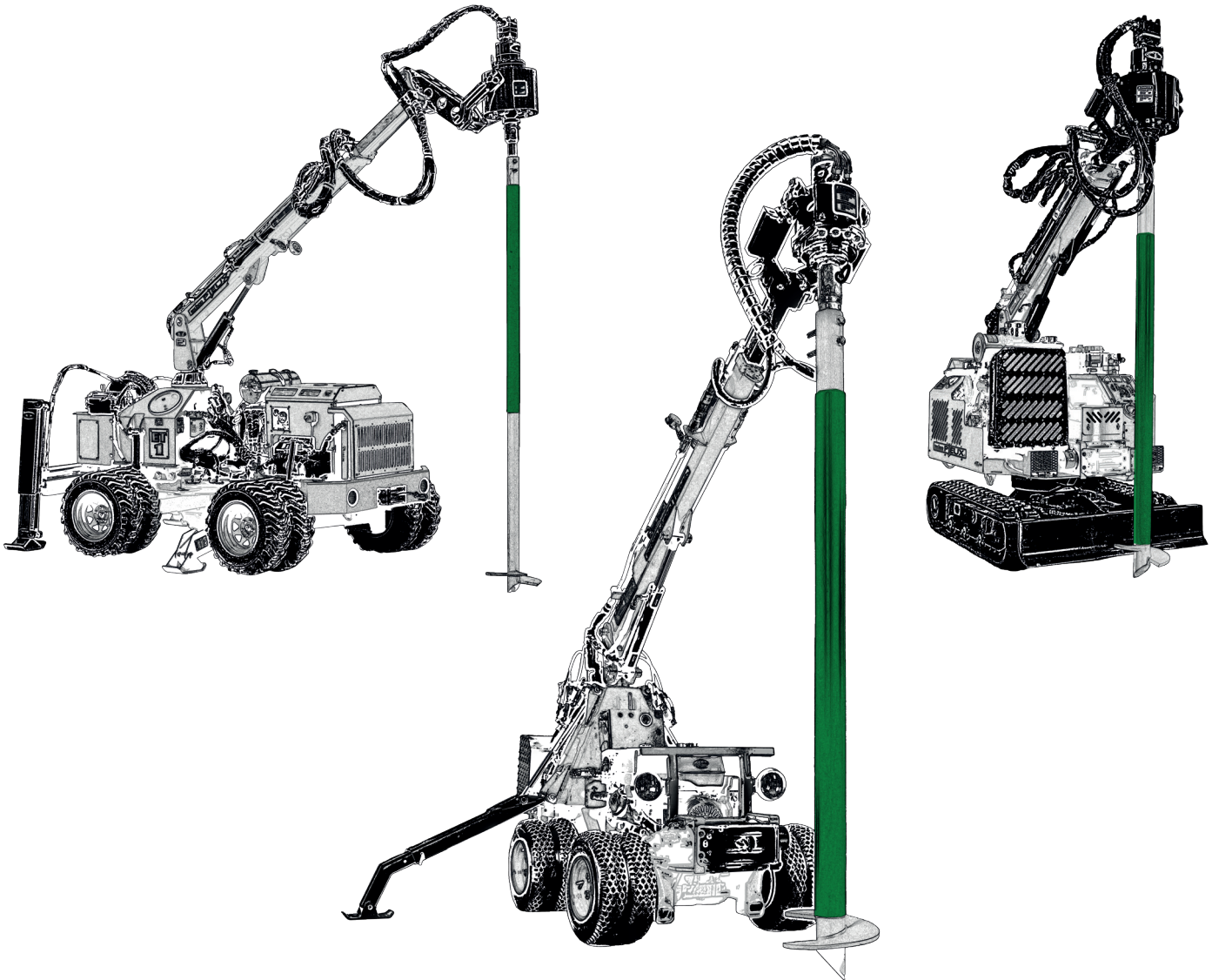
### ENGINEERING TEAMS

TMP's engineers are specialized in geotechnical and structural engineering and are here to assist and offer you personalized service – from small residential projects to large-scale industrial installations. Whenever you specify a helical pile foundation project, our engineers are available to assist in determining the proper helical piles to use for each of your projects and will issue a certificate and guarantee the work according to standards.

## GENERAL LIMITATIONS

The allowable capacities of TMP manufactured products shown in this Spec Book are only indicative and provide a general guidance to the reader in order to help specify the appropriate product for their project and it is recommended to consult with an engineer. Site specific conditions and engineering may reduce the allowable capacities of the helical piles shown in this Spec Book.

The allowable capacities of helical piles are subject to a strict compliance with the installation procedure. Namely, the helical piles shall be installed to appropriate depth and soil bearing stratum. A minimum safety factor of 2.0 is required for determining allowable capacity from correlations with final installation torque. A higher safety factor may apply for some applications.





## TECHNICAL CERTIFICATIONS - AN ASSURANCE OF QUALITY AND RELIABILITY

TMP has worked tirelessly to obtain the required accreditation and acceptance of its products throughout the world. Our engineers have spent countless hours ensuring that our products meet the strictest standards. TMP is the first helical pile company in the world to be recognized and to receive certifications from multiple countries.



### INTERNATIONAL CODE COUNCIL EVALUATION SERVICE (ICC-ES)

#### EVALUATION SERVICE REPORT #3418

ICC-ES is the International Code Council Evaluation Service. This organization is widely accepted and trusted to evaluate products and confirm the **compliance with building codes**. In November 2013, Techno Metal Post received an Evaluation Report (ESR-3418), which covers the P3 and P3HD shaft (3.5" O.D.), in three helix size (8", 10", and 12"). The report confirms the compliance with the International Building Code (IBC). In addition, acceptance for seismic zones DEF was obtained in 2022. All certification documents are easily available on our corporate website, under "Professionals" section, then "Certifications", where you can find and read the full ICC-ES Report.



**IAPMO UES ER-481**

### INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICERS (IAPMO)

#### EVALUATION REPORT #481

In 2018, TMP was the first helical pile manufacturer to receive International Residential Code (IRC Code) approval with the publishing of IAPMO ER 481. ER 481 approval includes pile models P1, P2, and P3 shafts and selected underpinning brackets. In 2022, this approval was updated to include seismic zones DEF and to provide a prescriptive helical pile foundation option to replace concrete deck piers.





**International:** TMP has also been assessed and approved by **Canadian Welding Bureau (CWB)**, for the provisions of: **ISO 9001:2015**.



**Canada:** In 2002, TMP was the first helical pile company to receive a **Canadian Construction Material Centre (CCMC)** product evaluation stating that it is **compliant with the Canadian National Building Code**, subject to the condition of use described in the Evaluation Report.



**CWB:** Techno Metal Post is also certified by the **Canadian Welding Bureau (CWB) CSA W47.1**.



**France:** In 2006, Techno Metal Post's technology was the first to be granted **technical approval #3/16 873** by the **Commission Chargée de Formuler des Avis Techniques (CCFAT)**.



**Europe:** Techno Metal Post has received the certification which confirms its products fulfill all the prescribed requirements for the **European Norm EN 1090-1:2009 + A1:2011**, including **Execution Class 2 in EN 1090-2**.



**U.K.:** TMP was the first helical pile company to receive **BBA Approval Inspection Testing Certification (Certificate 18/5477)**, which is recognized in the United Kingdom by building control offices, government ministries, architects, specifiers and industry insurers.

Model (Outside Diameter)	Project Type	Maximum Allowable Bearing Capacity <sup>1 2 3 4</sup>		Allowable Lateral Capacity <sup>5</sup>	Maximum Installation Torque	Allowable Bending Resistance <sup>7</sup>
		Compression (lb)	Tension (lb)	lb	ft-lb	ft-lb
<b>P1</b> (1.9")	<b>Light Residential</b> (deck without roof, stairs, etc.)	6,700	4,450	250	1,336 <sup>8</sup>	785
<b>P2</b> (2.375")	<b>Medium Residential and Light Commercial</b> (deck, carport, sunroom, single story residential addition, etc.)	11,200	7,450	550	2,242 <sup>8</sup>	1,360
<b>P2HD</b> (2.375")	<b>Medium Residential and Light Commercial</b> (deck, carport, sunroom, single storey residential addition, concrete slab, etc.)	20,000	13,300	550	4,000	2,300
<b>P2.5</b> (2.875")	<b>Medium Residential and Light Commercial</b> (deck, carport, sunroom, single storey residential addition, new construction, concrete slab etc.)	20,000	13,300	650	4,444	2,809
<b>P3</b> (3.5")	<b>Heavy Residential, Light to Medium Commercial and Industrial</b> (two-story residential addition, cottage, sign, carport, solar panel, new construction, underpinning, boardwalk, tie-back, etc.)	29,800 to 33,000 <sup>10</sup>	19,850	1,200	8,509 <sup>8</sup>	4,571
<b>P4<sup>6</sup></b> (4")	<b>Heavy Residential, Light to Medium Commercial and Industrial</b> (cottage, sign, light post, solar panel, new construction, boardwalk, tie-back, bollard, etc.)	35,000 to 45,000 <sup>10</sup>	23,100	1,500	11,000	6,371
<b>P3HD<sup>6</sup></b> (3.5")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (new construction, underpinning, tie-back, etc.)	38,500 to 45,000 <sup>10</sup>	25,700	1,400	11,000	6,428
<b>P4HD<sup>6</sup></b> (4")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (new construction, retaining wall, tie-back, etc.)	45,600 to 50,000 <sup>10</sup>	30,400	1,500	14,500	8,944
<b>P5<sup>6</sup></b> (5.563")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (cottage, sign, light post, new construction, boardwalk, solar panel, bollard, retaining wall, etc.)	32,600 to 50,000 <sup>10</sup>	21,700	2,750	14,500 <sup>9</sup>	14,713
<b>P6<sup>6</sup></b> (6.625")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (sign, light post, new construction, solar panel, bollard, retaining wall, etc.)	31,200 to 50,000 <sup>10</sup>	20,900	3,700	14,500 <sup>9</sup>	23,142

1. The maximum compressive bearing capacity (allowable load) includes a safety factor of 2.

2. The maximum bearing capacity (allowable load) is determined by the maximum torque applied by the installation equipment.

3. When the helical foundation is laterally unsupported (soil very loose / soft, liquefiable soils, water and air), the structural strength of the helical foundation must be approved by TMP Engineering department.

4. For tension applications, the helical foundation must be installed such that the minimum depth from the ground surface to the helix is 12D, where D is the diameter of the helix. Contact TMP Engineering department for tension applications when 12D cannot be maintained.

5. Lateral capacity is based on medium dense soils with free head condition with a maximum distance in air or fluid soils of 6" and embedment of 7 feet. Refer to Appendix A for additional information.

6. TMP Model P4, P3HD, P4HD, P5 and P6 are subject to site specific engineering. TMP Engineering department approval is required to use the upper capacity values shown in table.

7. Allowable bending resistance are based on calculations assuming bare steel, 50 year corrosion per AC358 and 1.67 safety factor.

8. Maximum installation torque for P1, P2 and P3 are based on IAPMO-UES Evaluation report no. 481

9. Maximum installation torque for P5 and P6 are limited to the maximum torque of the ET-1 installation equipment

10. Maximum allowable capacities shown in table may be obtained with site specific analysis and/or load testing.

#### COMMENTS

- For any technical questions, please contact the TMP Engineering department.

- Larger Techno Metal Post can be used for applications requiring a lateral or bending resistance higher than shown in the selection table.

## INTRODUCTION

Techno Metal Post helical foundation capacities shown in this catalog include consideration for corrosion loss over the life of a typical structure. A typical structure's lifespan is assumed to be 50-75 years and soil corrosivity is assumed to be non-severe up to corrosive soil. Severely corrosive soil sites usually have one or more of the following conditions and require site-specific attention and design: soil resistivity < 1000 ohm-cm, soil PH < 5.5, high organic content soil, mine or landfill waste, soil sulfate concentrations > 1000 ppm, or helical foundations located in splash zones of water especially saltwater.

Corrosion loss is commonly accounted for by increased wall thickness, hot-dip galvanization, or a combination of these two techniques. Other corrosion protection systems that are available include sacrificial zinc or magnesium anodes electrically attached to the shafts and impressed current systems. Impressed current systems apply a dc voltage to the system of piles in-order-to interrupt the galvanic reaction and protect all the piles below grade.

## CODE REQUIREMENTS

Building code requirements for required corrosion loss of steel piles varies. The United States model code (IBC 2021) is silent on corrosion loss for piles, the National Building Code of Canada (NBC 2015), states that corrosion protection must be provided when soil conditions are corrosive to steel but is silent on corrosion loss for piles. The Canadian Foundation Engineering Manual (CFEM 2006) refers to National Bureau of Standards Monograph 127 (1972) and Bjerrum (1967) in regard of detailed information on corrosion of steel piles. Transport Quebec (CCDG 2020) recommends 1.5 mm total loss, and the European Code (EN 1993-5:2007) recommends various corrosion rates depending on soil type. Other corrosion loss references include Helical Piles, A Practical Guide to Design and Installation, Howard A. Perko, PhD PE and the International Code Council – Evaluation Service, Acceptance Criteria for Helical Foundations ICC-ES AC358.

In the United States, it is common to design to ICC-ES AC358 which recommends a reduced design wall thickness ( $T_d$ ) to account for corrosion loss. The loss of side wall thickness due to corrosion ( $T_s$ ) is subtracted from the design wall thickness ( $T_n$ ).  $T_s$  is obtained from the following equations where  $t$  equals the design life in years:

**Zinc-coated steel:**  $T_s = 25 t^{0.65}$ , (318 $\mu$ m or 0.013" at 50 years)

**Bare Steel:**  $T_s = 40 t^{0.80}$ , (914 $\mu$ m or 0.036" at 50 years)

In Canada, the recommended calculation method relating to the loss of thickness by corrosion is similar to that recommended by ICC-ES AC358. The calculation method uses a thickness  $T_s$  (thickness of sacrificial steel) based on a minimum service life of 50 years, i.e.:

**Black steel (no protection):**  $T_s = 1.5\text{mm}$

**Galvanized steel (per CSA G164):**  $T_s = 0.32\text{mm}$

**Galvanized steel (per ASTM A123):**  $T_s = 0.36\text{mm}$

In Europe, EN 1993-5:2007 recommends atmospheric corrosion may be taken as 0.01 mm per year in normal conditions or 0.02 mm per year where marine conditions are applicable. Corrosion loss in soils, EN 1993-5:2007 presents the following Table 4-1 in soil and Table 4-2 in water

## Recommended value of thickness loss (mm) due to corrosion for piles and sheet piles in soils, with or without groundwater

Required design working life	5 years	25 years	50 years	75 years	100 years
Undisturbed natural soils (sand, silt, clay, schist,...)	0.00	0.30	0.60	0.90	1.20
Polluted natural soils and industrial sites	0.15	0.75	1.50	2.25	3.00
Aggressive natural soils (swamp, marsh, peat,...)	0.20	1.00	1.75	2.50	3.25
Non-compacted and non-aggressive fills (clay, schist, sand, silt,...)	0.18	0.70	1.20	1.70	2.20
Non-compacted and aggressive fills (ashes, slag,...)	0.50	2.00	3.25	4.50	5.75

### Notes

1. Corrosion rates compacted fills are lower than those in non-compacted ones. In compacted fills the figures in the table should be divided by two.
2. The values given for 5 to 25 years are based on measurements, whereas the other values are extrapolated.

## Recommended value for the loss of thickness (mm) due to corrosion for piles and sheet piles in fresh water or in sea water

Required design working life	5 years	25 years	50 years	75 years	100 years
Common fresh water (river, ship, canal,...) in the zone of high attack (water line)	0.15	0.55	0.90	1.15	1.40
Very polluted fresh water (sewage, industrial effluent,...) in the zone of high attack (water line)	0.30	1.30	2.30	3.30	4.30
Sea water in temperate climate in the zone of high attack (low water and splash zones)	0.55	1.90	3.75	5.60	7.50
Sea water in temperate climate in the zone of permanent immersion or in the intertidal zone	0.25	0.90	1.75	2.60	3.50

### Notes

1. The highest corrosion rate is usually found in the splash zone or at the low water level in tidal waters. However, in most cases, the highest bending stresses occur in the permanent immersion zone, see the table above.
2. The values given for 5 to 25 years are based on measurements, whereas the other values are extrapolated.

## HOT DIP GALVANIZATION

Techno Metal Post foundations can be hot-dipped galvanized to reduce corrosion loss and increase lifespan. Galvanization is performed per ASTM A123. Minimum galvanization thickness of Techno Metal Post products is 75 µm or about 3 mils (530 g/m<sup>2</sup>). This zinc coating sacrifices itself and protects the base metal prolonging service life by about 15 years based on AASHTO and AC-358. Performance of hot-dipped galvanized steel in soil is summarized by Perko 2007.

## OTHER GOOD PRACTICE RECOMMENDATIONS

When in doubt of the actual soil conditions on the project site, it is conservative to select hot-dipped galvanized steel products or use a cathodic protection system. Welds at couplings for hot-dipped galvanized steel shafts should have a coat of zinc-rich paint applied prior to advancing the coupling into the ground or be protected by a sacrificial zinc anode.

## Shaft

Wall Thickness	0.145" (3.68 mm)
Round HSS Outside Diameter	1.9" (48.3 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

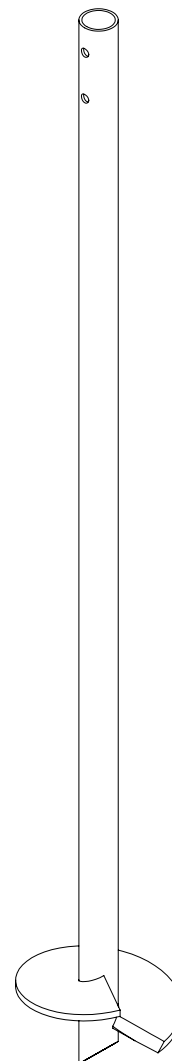
## Load Specifications

Max. Installation Torque	1,336 ft-lb (1,810 N-m)
Max. Allowable Capacity*	6.7 kips (29.8 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

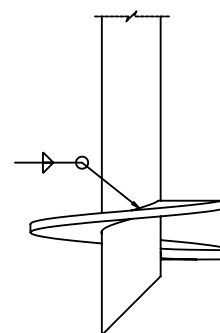
Commonly Used Structure	Light Residential
Code Evaluation	Listed per IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC308
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

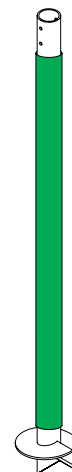
Pitch	3" (76.2 mm)
Thickness	0.375" (9.5 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	6" (152 mm) to 12" (305 mm)

\* Other sizes available upon request.



## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 2.125" (± 54.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 0.65 lb (± 0.30 kg)
Material	HDPE
Color	Green



## Pile Caps

Wood Structure Connectors

Pages 35-40, 43, 44,  
47-50, 53, 54, 57, 58

## Shaft

Wall Thickness	0.154" (3.91 mm)
Round HSS Outside Diameter	2.375" (60.3 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

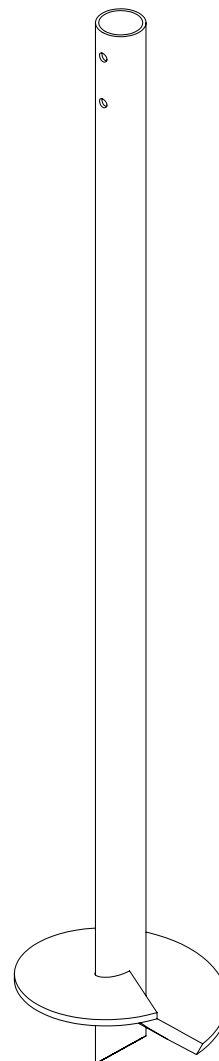
## Load Specifications

Max. Installation Torque	2,242 ft-lb (3,037 N-m)
Max. Allowable Capacity*	11 kips (49 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

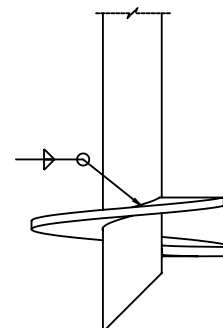
Commonly Used Structure	Medium Residential Light Commercial
Code Evaluation	Listed per IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

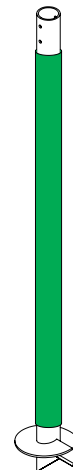
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.375" (9.5 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	6" (152 mm) to 16" (406 mm)

\* Other sizes available upon request.

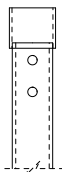


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 2.625" (± 66.7 mm)
Length	± 66" (± 1.67 m)
Weight	± 0.95 lb (± 0.43 kg)
Material	HDPE
Color	Green



## Outside Couplings



	<b>Regular</b>
Assembly	Welded
Wall Thickness	0.203" (5 mm)
Round HSS Outside Diameter	2.875" (73 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	1.25" (31.8 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 35, 36, 39, 40, 43, 44, 47-50, 53, 54, 57, 58, 64, 65
Steel Structure Connectors	Page 63
Concrete Construction Connectors	Pages 63, 70-72



## Shaft

Wall Thickness	0.25" (6.35 mm)
Outside Diameter	2.375" (60.3 mm)
Available Standard Lengths	6'-0" (1.8 m) / 8'-0" (2.4 m) / 12'-0"(3.7m)

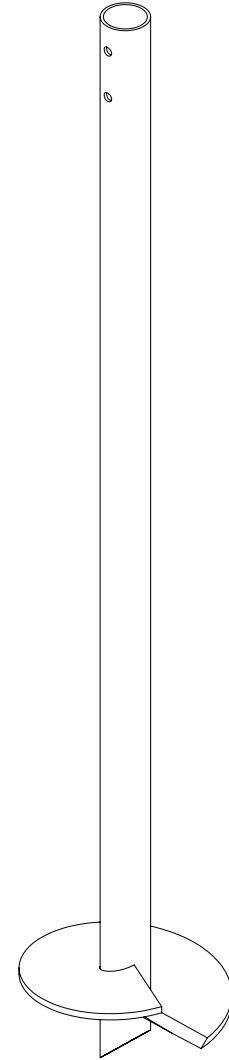
## Load Specifications

Max. Installation Torque	4000 ft-lb (5423.3 N-m)
Max. Allowable Capacity*	20 kips (88.9 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

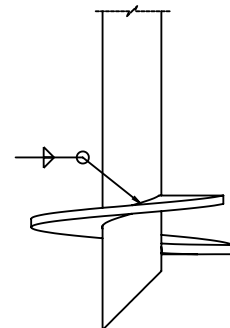
Commonly Used Structure	Medium Residential Light Commercial
Code Evaluation	IRC/IBC 2021
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.375" (9.5 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	6" (152 mm) to 16" (406 mm)

\* Other sizes available upon request.

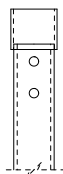


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 2.625" (± 66.7 mm)
Length	± 66" (± 1.67 m)
Weight	± 0.7 lb (± 0.32 kg)
Material	HDPE
Color	Green



## Outside Couplings



### Regular

Assembly	Welded
Wall Thickness	0.203" (5.16 mm)
Round HSS Outside Diameter	2.875" (73.0 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	1.25" (31.8 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 35, 36, 43, 44, 49, 50, 53, 54, 64, 65
Steel Structure Connectors	Pages 63, 72
Concrete Construction Connectors	Pages 63, 72

## Shaft

Wall Thickness	0.203" (5.16 mm)
Round HSS Outside Diameter	2.875" (73.0 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

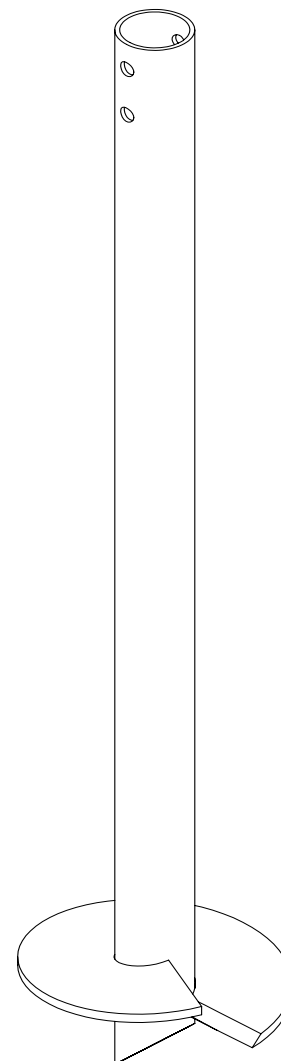
## Load Specifications

Max. Installation Torque :	4444 ft-lb (5423.3 N-m)
Max. Allowable Capacity*	20 kips (kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

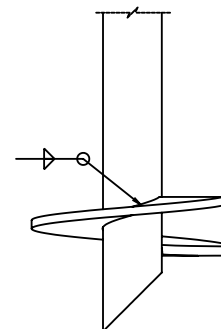
Commonly Used Structure	Medium Residential Light Commercial
Code Evaluation	IRC/IBC 2021
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

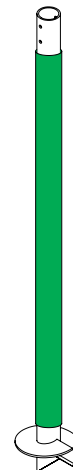
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.375" (9.5 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

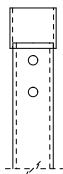


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 3.125" (± 79.4 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.25 lb (± 0.57 kg)
Material	HDPE
Color	Green



## Outside Couplings



### Regular

Assembly	Welded
Wall Thickness	0.216" (5.49 mm)
Round HSS Outside Diameter	3.5" (88.9 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3.5" (88.9 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 59-62, 64, 65
Steel Structure Connectors	Page 63
Concrete Construction Connectors	Pages 63, 70-72

## Shaft

Wall Thickness	0.216" (5.49 mm)
Round HSS Outside Diameter	3.5" (88.9 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

## Load Specifications

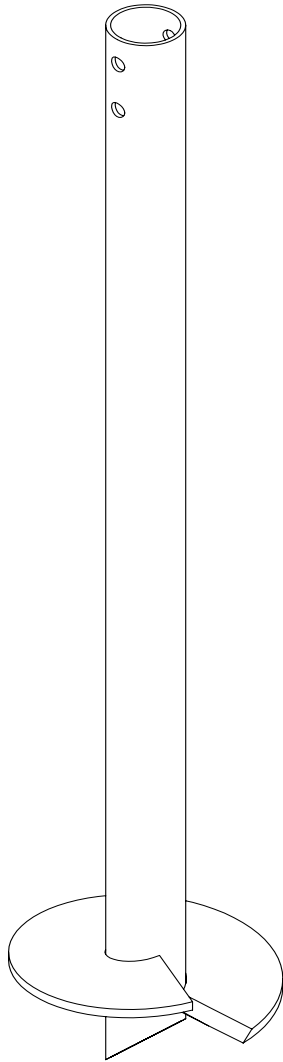
Max. Installation Torque :

with <b>Regular</b> and <b>Expanded</b> coupling	8,509 ft-lb (11,527 N-m)
with <b>Reinforced</b> coupling	11,000 ft-lb (14,902 N-m)
Max. Allowable Capacity*	29.8 kips (132.4 kN) to 33 kips (146.7 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

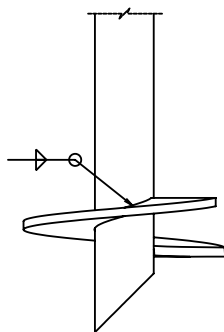
Commonly Used Structure	Heavy Residential Light to Medium Commercial Industrial
Code Evaluation	Listed per ICC-ES (ESR-3418) / IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

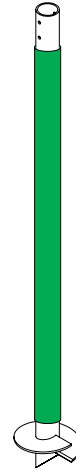
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

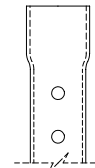
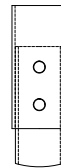
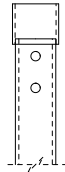


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 3.75" (± 95.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.52 lb (± 0.69 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced	Expanded
Assembly	Welded	Welded	-
Wall Thickness	0.226" (5.74 mm)	0.226" (5.74 mm)	0.188" (4.78 mm)
Round HSS Outside Diameter	4" (101.6 mm)	4" (101.6 mm)	4" (101.6 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3.5" (88.9 mm)	8.75" (222.3 mm)	2.5" (63.5 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 37, 38, 41, 42, 45, 46, 51, 52, 55, 56, 59-62, 64-66
Steel Structure Connectors	Pages 63, 67, 68
Concrete Construction Connectors	Pages 63, 69-72

## Foundation Repair Brackets

Concrete Wall	Page 74
Concrete Masonry Unit (CMU) Wall	Pages 75-77
Interior Concrete Wall	Page 78

## Shaft

Wall Thickness	0.300" (7.62 mm)
Round HSS Outside Diameter	3.5" (88.9 mm)
Available Standard Lengths	5'-3" (1.6 m)/ 7'-0" (2.1 m) / 10'-6" (3.2 m)

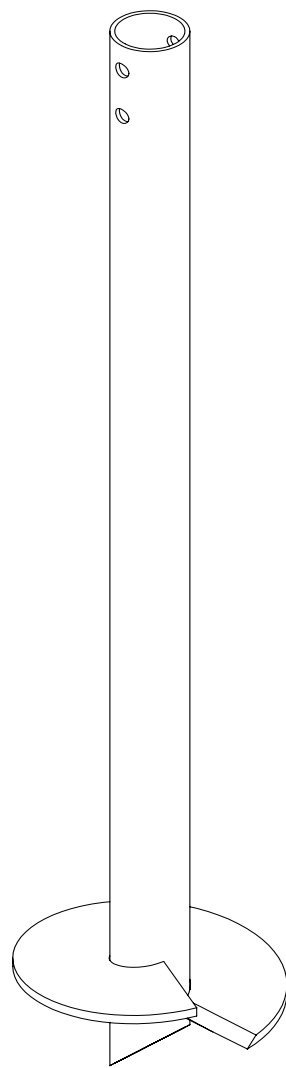
## Load Specifications

Max. Installation Torque	11,000 ft-lb (14,902 N-m)
Max. Allowable Capacity*	38 kips (168.9 kN) to 45 kips (200 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

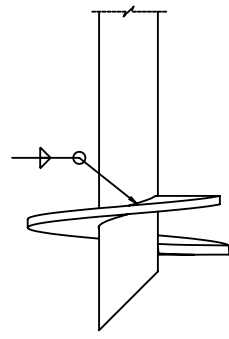
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Code Evaluation	Listed per ICC-ES (ESR-3418) / IAPMO-UES (ER-481)
	Standard Steel
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

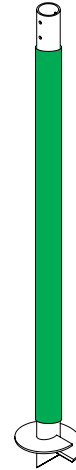
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
	Coating
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

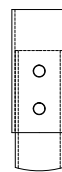
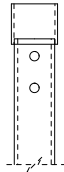


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 3.75" (± 95.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.52 lb (± 0.69 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced
Assembly	Welded	Welded
Wall Thickness	0.226" (5.74 mm)	0.226" (5.74 mm)
Round HSS Outside Diameter	4" (101.6 mm)	4" (101.6 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3.5" (88.9 mm)	8.75" (222.3 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 64-66
Steel Structure Connectors	Pages 63, 67, 68
Concrete Construction Connectors	Pages 63, 69-72

## Foundation Repair Brackets

Concrete Wall	Page 74
Concrete Masonry Unit (CMU) Wall	Pages 75-77
Interior Concrete Wall	Page 78



## Shaft

Wall Thickness	0.226" (5.74 mm)
Round HSS Outside Diameter	4" (101.6 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

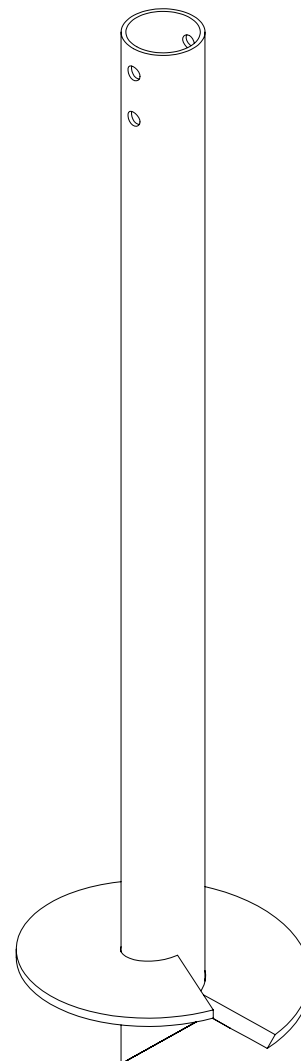
## Load Specifications

Max. Installation Torque	11,000 ft-lb (14,902 N-m)
Max. Allowable Capacity*	36 kips (160 kN) to 45 kips (200 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

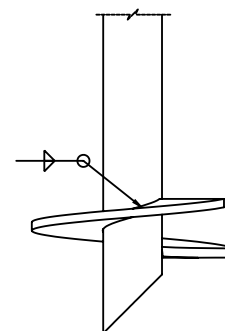
Commonly Used Structure	Heavy Residential
	Light to Medium Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

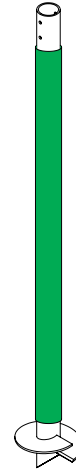
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

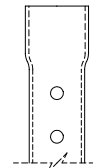
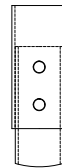
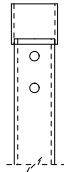


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 4.25" (± 108 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.61 lb (± 0.73 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced	Expanded
Assembly	Welded	Welded	-
Wall Thickness	0.237" (6.02 mm)	0.237" (6.02 mm)	0.201" (5.11 mm)
Round HSS Outside Diameter	4.5" (114.3 mm)	4.5" (114.3 mm)	4.5" (114.3 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3.5" (88.9 mm)	8.75" (222.3 mm)	2.7" (68.5 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 64, 65
Steel Structure Connectors	Page 63
Concrete Construction Connectors	Pages 63, 70, 71

## Shaft

Wall Thickness	0.313" (7.95 mm)
Round HSS Outside Diameter	4" (101.6 mm)
Available Standard Lengths	6'-0" (1.83 m) / 8'-0" (2.4 m) / 12'-0" (3.7 m)

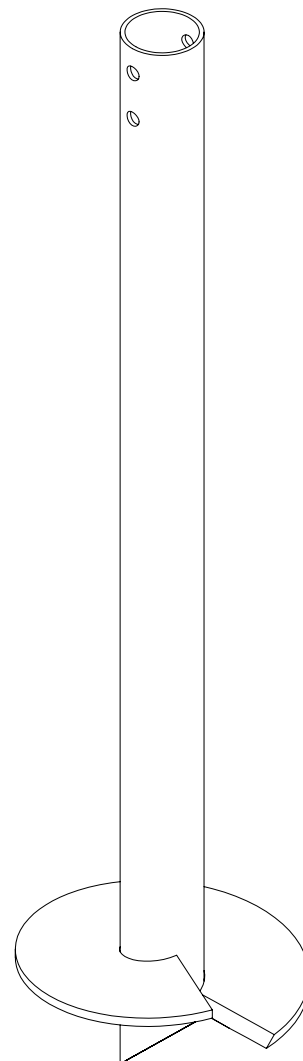
## Load Specifications

Max. Installation Torque	14,500 ft-lb (19,643 N-m)
Max. Allowable Capacity*	44 kips (195.6 kN) to 50 kips (222.2 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

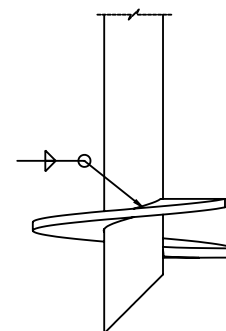
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

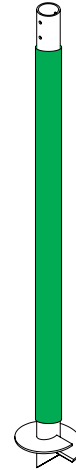
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

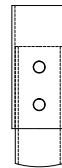
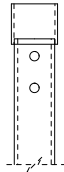


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 4.25" (± 108 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.61 lb (± 0.73 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced
Assembly	Welded	Welded
Wall Thickness	0.237" (6.02 mm)	0.237" (6.02 mm)
Round HSS Outside Diameter	4.5" (114.3 mm)	4.5" (114.3 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3.5" (88.9 mm)	8.75" (222.3 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Page 64
Steel Structure Connectors	Page 63
Concrete Construction Connectors	Page 63

## Shaft

Wall Thickness	0.258" (6.55 mm)
Round HSS Outside Diameter	5.563" (141.3 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

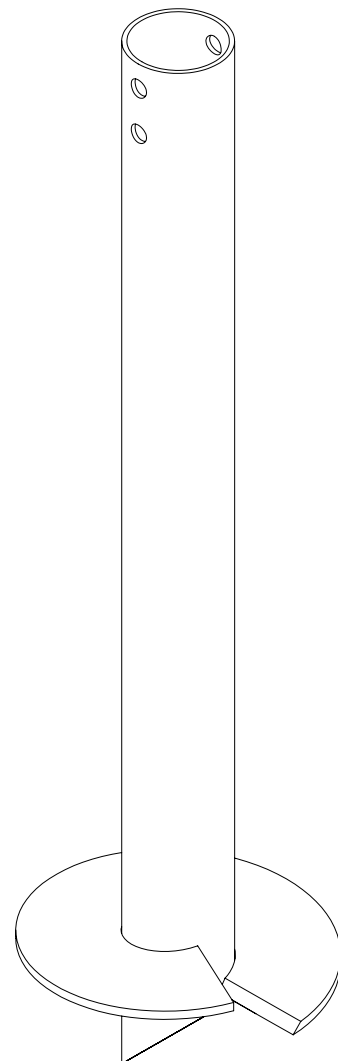
## Load Specifications

Max. Installation Torque	14,500 ft-lb (19,700 N-m)
Max. Allowable Capacity*	30 kips (133.3 kN) to 50 kips (222.2 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

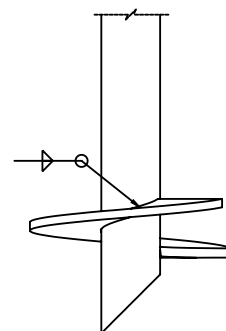
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC308
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

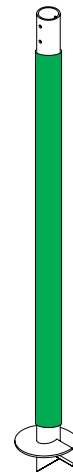
Pitch	5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	12" (305 mm) to 24" (610 mm)

\* Other sizes available upon request.

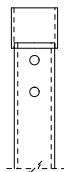


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Outside Diameter	± 5.75" (± 146 mm)
Length	± 66" (± 1.67 m)
Weight	± 3.11 lb (± 1.41 kg)
Material	HDPE
Color	Green



## Outside Couplings



### Regular

Assembly	Welded
Wall Thickness	0.188" (4.78 mm)
Round HSS Outside Diameter	6" (152.4 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3" (76.2 mm)

\* Factory welded outside coupling length or on site.

## Pile Caps

Wood Structure Connectors	Pages 64, 65
Steel Structure Connectors	Page 63
Concrete Construction Connectors	Pages 63, 70, 71

## Shaft

Wall Thickness	0.280" (7.11 mm)
Round HSS Outside Diameter	6.625" (168.3 mm)
Available Standard Lengths	5'-3" (1.6 m) / 7'-0" (2.1 m) / 10'-6" (3.2 m)

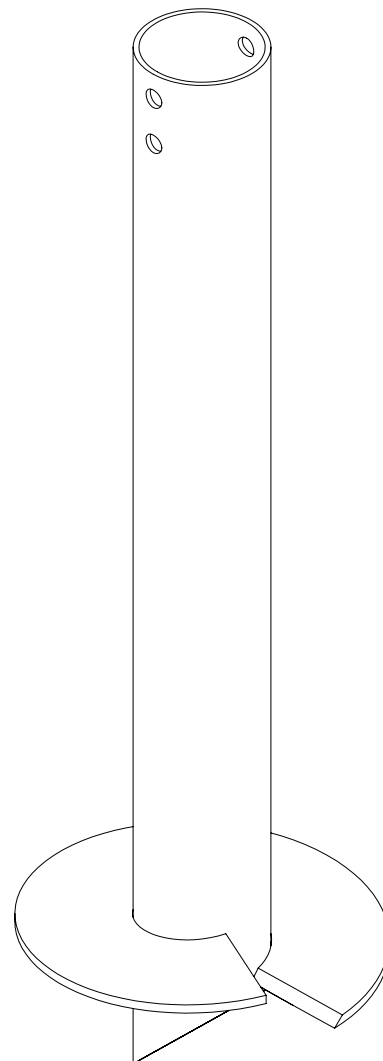
## Load Specifications

Max. Installation Torque	14,500 ft-lb (19,700 N-m)
Max. Allowable Capacity*	30 kips (133.3 kN) to 50 kips (222.2 kN)

\* Higher load ratings could be considered with site-specific engineering.

## Technical Specifications

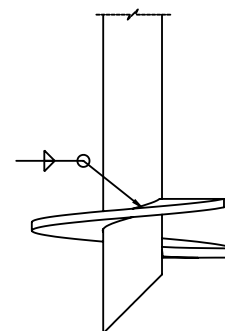
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



## Helix

Pitch	5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	12" (305 mm) to 24" (610 mm)

\* Other sizes available upon request.



Sleeve (not available)

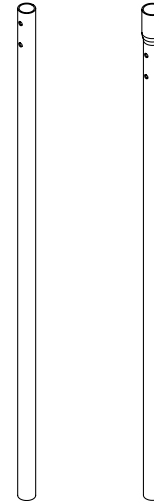
Outside Couplings (Available upon request)

Pile Caps (Available upon request)



## Technical Specifications

Commonly Used Structure	Deep foundations
Code Evaluation	Listed per ICC-ES (ESR-3418) (P3 pile only) & IAPMO-UES (ER-481) (P1 - P2 & P3 piles)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection System available



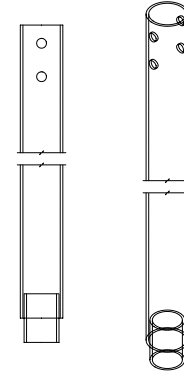
## Dimensions Specifications

Extensions	Wall Thickness	Outside Diameter	Available Standard Lengths			Max. Installation Torque
			5'-3"	7'-0"	10'-6"	
<b>R1</b>	0.145" (3.68 mm)	1.9" (48.3 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	1,336 ft-lb (1,810 N-m)
<b>R2</b>	0.154" (3.91 mm)	2.375" (60.3mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	2,242 ft-lb (3,037 N-m)
<b>R2-HD</b>	0.25" (6.35 mm)	2.375" (60.3mm)	6'-0" (1.8m)	8'-0" (2.4 m)	12'-0" (3.7 m)	4,000 ft-lb (5,423,3 N-m)
<b>R2.5</b>	0.203" (5.16 mm)	2.875" (73.0 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	4,444 ft-lb (5,423,3 N-m)
<b>R3</b>	0.216" (5.49 mm)	3.5" (88.9 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	8,509 ft-lb (11,527 N-m)
<b>R3-HD</b>	0.300" (7.62 mm)	3.5" 88.9 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	11,000 ft-lb (14,902 N-m)
<b>R4</b>	0.226" (5.74 mm)	4" (101.6 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	11,000 ft-lb (14,902 N-m)
<b>R4-HD</b>	0.313" (7.95 mm)	4" (101.6 mm)	6'-0" (1.8m)	8'-0" (2.4 m)	12'-0" (3.7 m)	14,500 ft-lb (19,643 N-m)
<b>R5</b>	0.258" (6.55 mm)	5.563" (141.3 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	14,500 ft-lb (19,700 N-m)
<b>R6</b>	0.280" (7.11 mm)	6.625" (168.3 mm)	5'-3" (1.6m)	7'-0" (2.1 m)	10'-6" (3.2 m)	14,500 ft-lb (19,700 N-m)

# EXTENSIONS

## Welded Inside Coupling

### UIS



### Technical Specifications

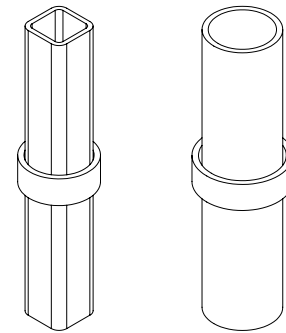
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

### Dimensions

For	Assembly	Outside Diameter	Wall Thickness	Length
<b>R1 (UIS-1)</b>	Welded	1.5" (38.1 mm)	0.125" (3.18 mm)	4" (101.6 mm)
<b>R2 (UIS-2)</b>	Welded	1.9" (48.3 mm)	0.145" (3.68 mm)	4" (101.6 mm)
<b>R3 (UIS-3)</b>	Welded	2.875" (73.0 mm)	0.203" (5.16 mm)	4" (101.6 mm)
<b>R4 (UIS-4)</b>	Welded	3.5" (88.9 mm)	0.216" (5.49 mm)	4" (101.6 mm)
<b>R5 (UIS-5)</b>	Welded	5" (127.0 mm)	0.25" (6.35 mm)	4" (101.6 mm)
<b>R6 (UIS-6)</b>	Welded	6" (152.4 mm)	0.1875" (4.76 mm)	3" (76.2 mm)

# Non-Welded Inside Coupling

### UI



### Technical Specifications

Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

### Dimensions

For	Assembly	Tubing			Ring Stopper		
		Outside Diameter	Wall Thickness	Length	Outside Diameter	Wall Thickness	Length
<b>R1 (UI-1)</b> (square tube)	Not Welded	1.25" (31.8 mm)	0.125" (3.18 mm)	8" (203.2 mm)	1.9" (48.3 mm)	0.145" (3.68 mm)	0.75" (19.0 mm)
<b>R2 (UI-2)</b> (round tube)	Not Welded	1.9" (48.3 mm)	0.145" (3.68 mm)	8" (203.2 mm)	2.375" (60.3 mm)	0.154" (3.91 mm)	0.75" (19.0 mm)

# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable

### A1/2-ADJ + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

##### Double bearing plate (PCE-4 + PCE-4 or PUE-5)

Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

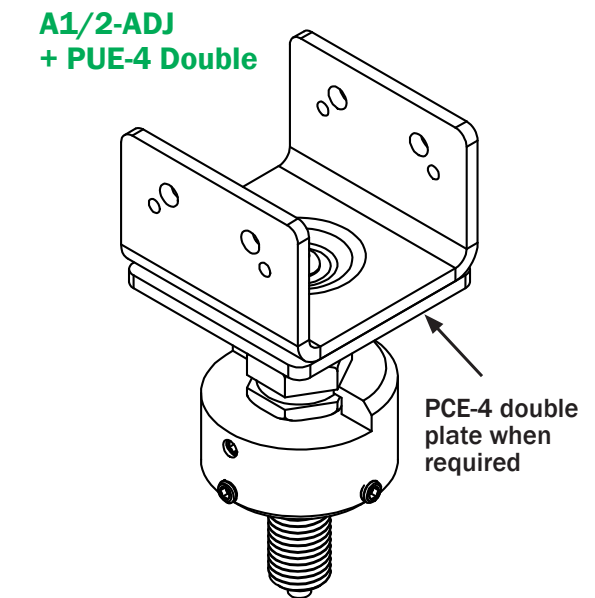
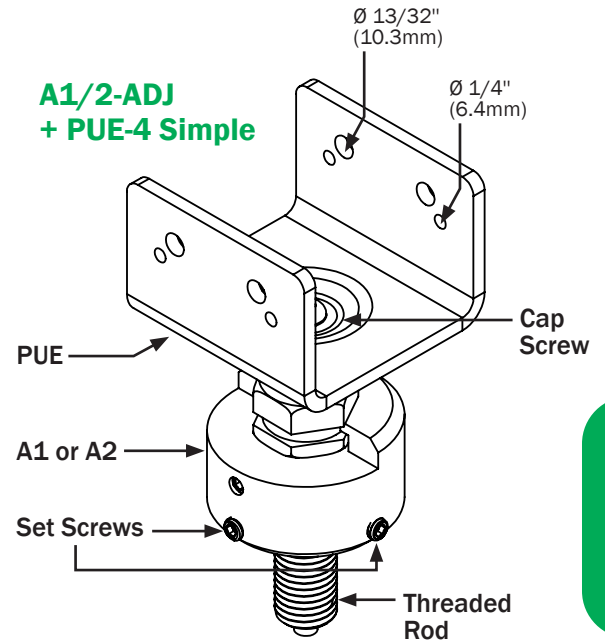
#### Technical Specifications

##### Material (standard) :

Cap	CSA G40.21 / 300W
Adapter	Casted 1018 steel
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1, P2 or P2HD	A1/2-ADJ + PUE-4	4" (101.6 mm)	3.5625" (90.5 mm)	N/A	0.25" (6.4 mm)
	A1/2-ADJ + PUE-5	4" (101.6 mm)	5.5625" (141.3 mm)	N/A	0.25" (6.4 mm)



# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable

### A1/2-ADJ + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate	Double plate	3/8" lag screws	#8 screws	lb. (kN)
P1, P2 or P2HD	A1/2-ADJ + PUE-4	2 ply 2 x __ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,700 lb (34.3 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	6,500 lb (28.9 kN)	8,100 lb (36.0 kN)	1,625 lb (7.2 kN)		
	A1/2-ADJ + PUE-5	3 ply 2 x __ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".

# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable

### A3-ADJ + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension 18 kips / 4 kips

Allowable Compression / Tension 9 kips / 2 kips

##### Double bearing plate (PCE-4 + PCE-4 or PUE-5)

Ultimate Compression / Tension 22 kips / 4 kips

Allowable Compression / Tension 11 kips / 2 kips

#### Technical Specifications

##### Material (standard) :

Cap CSA G40.21 / 300W

Adapter Casted 1018 steel

Threaded rod 1" Ø SAE Grade 2

Button head cap screw 3/8" Ø - Grade 5

Socket head set screws 3/8" Ø - Grade 5

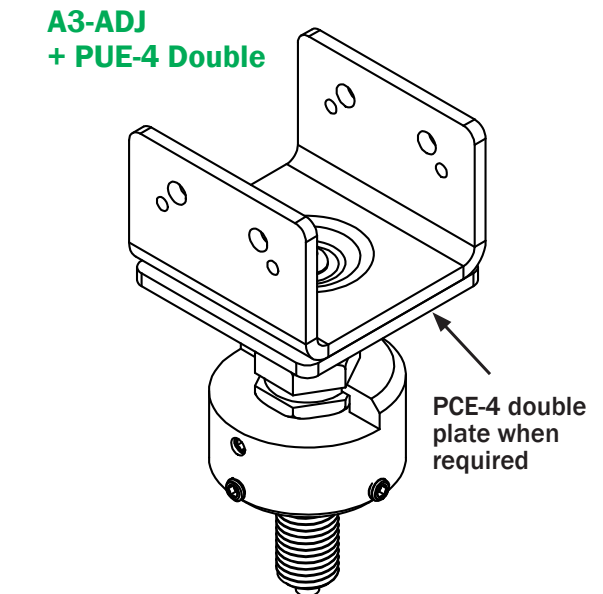
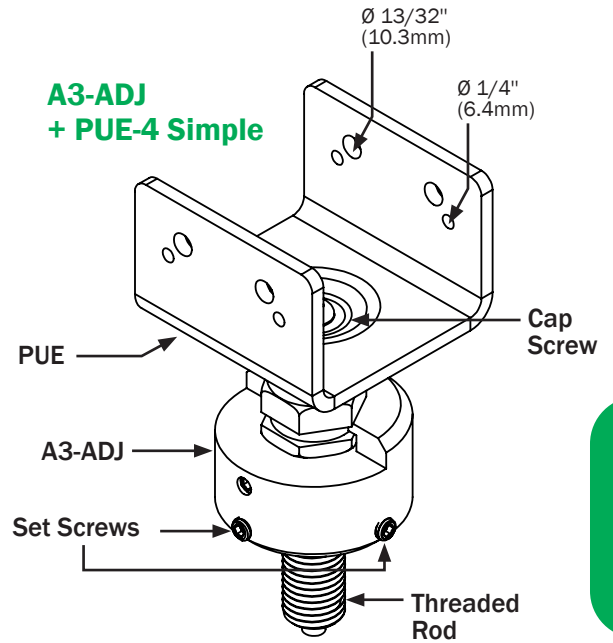
Black Steel Design Life 50 years per AC358

Coating Galvanized

Galvanization compliance ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P3	A3-ADJ + PUE-4	4" (101.6 mm)	3.5625" (90.5 mm)	N/A	0.25" (6.4 mm)
	A3-ADJ + PUE-5	4" (101.6 mm)	5.5625" (141.3 mm)	N/A	0.25" (6.4 mm)



# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable

### A3-ADJ + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate	Double plate	3/8" lag screws	#8 screws	lb. (kN)
P3	A3-ADJ + PUE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		2 ply - LVL beam	6,000 lb. (26.7 kN)	7,700 lb (34.3 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	6,500 lb (28.9 kN)	8,100 lb (36.0 kN)	1,625 lb (7.2 kN)		
	A3-ADJ + PUE-5	3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

- Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
- Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
- For wet use multiply table values by 0.7
- Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
- Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
- Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
- Structural Designer is responsible for wood design and verifying capacity of connection to wood members
- Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
- For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
- Maximum exposed height of threaded rod shall be 4".

# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable (old version)

### AS1 or AS2 + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

##### Double bearing plate (PCE-4 + PUE-4 or PUE-5)

Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

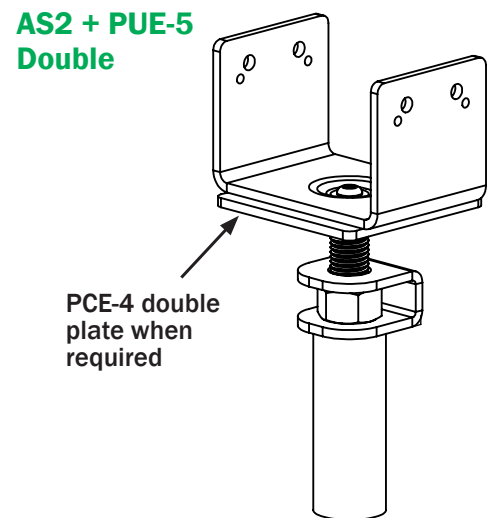
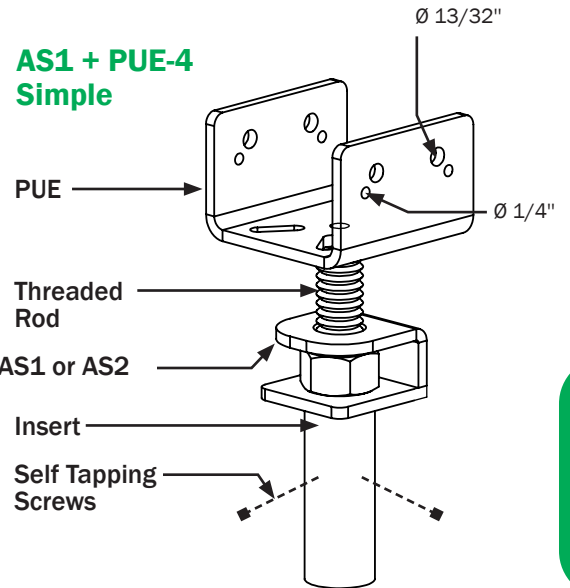
#### Technical Specifications

##### Material (standard) :

Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Threaded rod	1" Ø SAE Grade 2
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1 or P2	AS1 or AS2 + PUE-4	4" (101.6 mm)	3.5625" (90.5 mm)	2 - 3/4" (69.9 mm)	0.25" (6.4 mm)
	AS1 or AS2 + PUE-5	4" (101.6 mm)	5.5625" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)



# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable (old version)

### AS1 or AS2 + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral lb. (kN)
			Single plate	Double plate	3/8" lag screws	#8 screws	
P1 or P2	AS1 or AS2 + PUE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,700 lb (34.3 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	6,500 lb (29.4 kN)	8,100 lb (36.0 kN)	1,625 lb (7.2 kN)		
	AS1 or AS2 + PUE-5	3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (19.1 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".



# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable (old version)

### AS3 + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

##### Double bearing plate (PCE-4 + PUE-4 or PUE-5)

Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

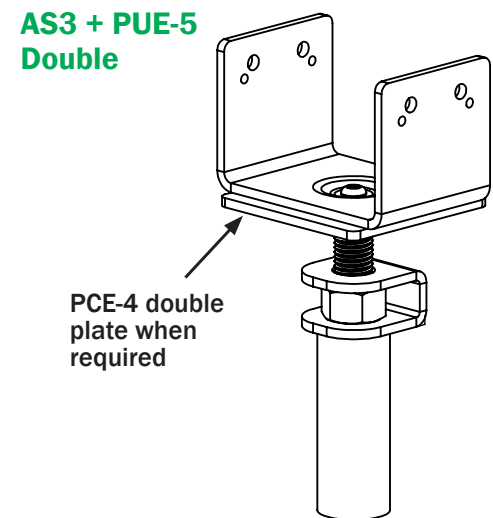
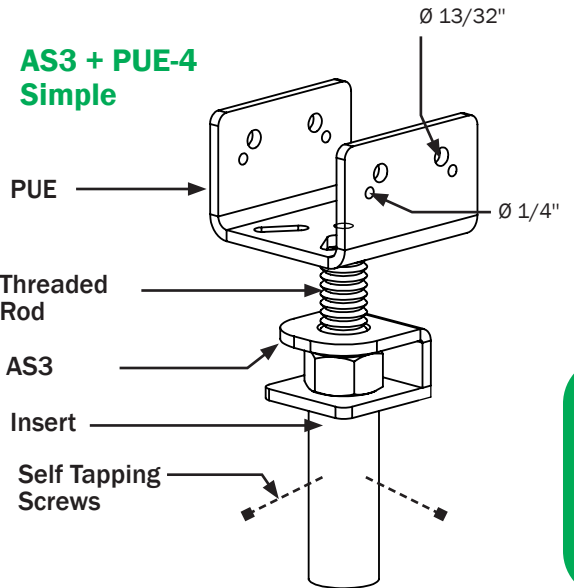
#### Technical Specifications

##### Material (standard) :

Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Threaded rod	1" Ø SAE Grade 2
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P3	<b>AS3 + PUE-4</b>	4" (101.6 mm)	3.5625" (90.5 mm)	2 - 3/4" (69.9 mm)	0.25" (6.4 mm)
	<b>AS3 + PUE-5</b>	4" (101.6 mm)	5.5625" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)



Pile Caps

# WOOD STRUCTURE CONNECTORS

## U Plate - Adjustable (old version)

### AS3 + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate	Double plate	3/8" lag screws	#8 screws	lb. (kN)
<b>P3</b>	<b>AS3 + PUE-4</b>	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,700 lb (34.3 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	6,500 lb (29.4 kN)	8,100 lb (36.0 kN)	1,625 lb (7.2 kN)		
	<b>AS3 + PUE-5</b>	3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (19.1 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### A1/2-ADJ + PCE-4 or PCE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension 18 kips / 4 kips

Allowable Compression / Tension 9 kips / 2 kips

##### Double bearing plate (PCE-4 + PCE-4 or PCE-5)

Ultimate Compression / Tension 22 kips / 4 kips

Allowable Compression / Tension 11 kips / 2 kips

#### Technical Specifications

##### Material (standard) :

Cap CSA G40.21 / 300W

Adapter Casted 1018 steel

Threaded rod 1" Ø SAE Grade 2

Button head cap screw 3/8" Ø - Grade 5

Socket head set screws 3/8" Ø - Grade 5

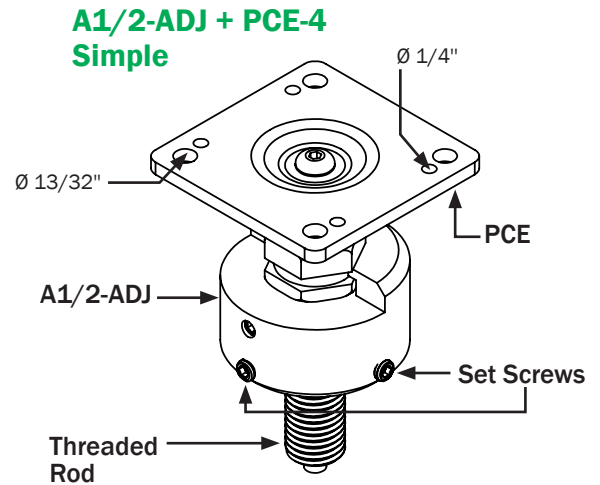
Black Steel Design Life 50 years per AC358

Coating Galvanized

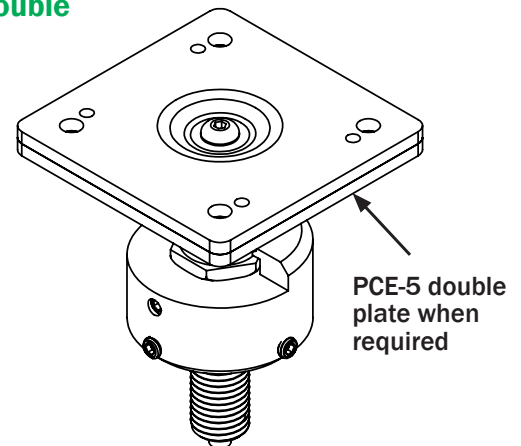
Galvanization compliance ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1, P2 or P2HD	A1/2-ADJ + PCE-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	A1/2-ADJ + PCE-5	5" (127 mm)		N/A	0.25" (6.4 mm)



##### A1/2-ADJ + PCE-5 Double



# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### A1/2-ADJ + PCE-4 or PCE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral lb. (kN)
			Single plate	Double plate	3/8" lag screws	#8 screws	
P1, P2 or P2HD	A1/2-ADJ + PCE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	N/A	450 lb (2.0 kN)	Not rated
		3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,900 lb (35.1 kN)	N/A	600 lb (2.7 kN)	
		4 x 4 SPF Post	6,500 lb (28.9 kN)	7,900 lb (35.1 kN)	N/A	N/A	
	A1/2-ADJ + PCE-5	3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,500 lb (6.7 kN)	600 lb (2.7 kN)	
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	N/A	N/A	

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### AS3 + PCE-4 or PCE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

##### Double bearing plate (PCE-4 + PCE-4 or PCE-5)

Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

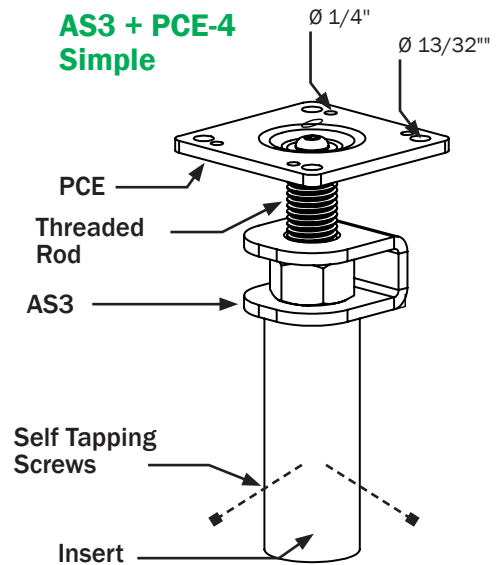
#### Technical Specifications

##### Material (standard) :

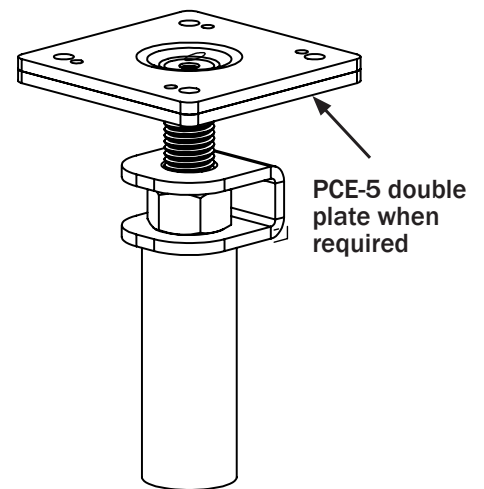
Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P3	AS3 + PCE-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	AS3 + PCE-5	5" (127 mm)		N/A	0.25" (6.4 mm)



##### AS3 + PCE-5 Double



# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### AS3 + PCE-4 or PCE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate	Double plate	3/8" lag screws	#8 screws	lb. (kN)
P3	AS3 + PCE-4	2 ply 2 x __ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	N/A	450 lb (2.0 kN)	Not rated
		3 ply 2 x __ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,900 lb (35.1 kN)	N/A	600 lb (2.7 kN)	
		4 x 4 SPF Post	6,500 lb (28.9 kN)	7,900 lb (35.1 kN)	N/A	N/A	
	AS3 + PCE-5	3 ply 2 x __ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,500 lb (6.7 kN)	600 lb (2.7 kN)	
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	N/A	N/A	

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### AS1 or AS2+ PCE-4 or PCE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

##### Double bearing plate (PCE-4 + PCE-4 or PCE-5)

Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

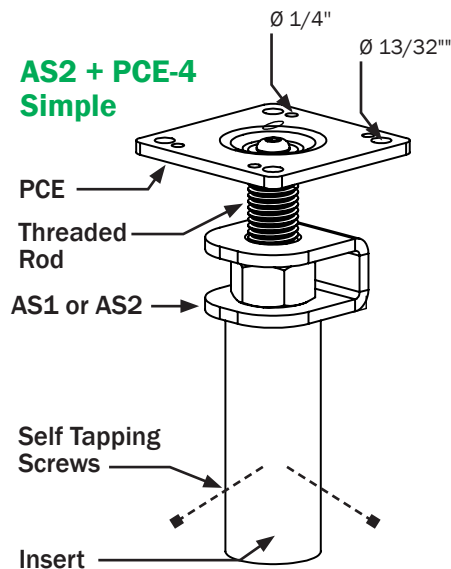
#### Technical Specifications

##### Material (standard) :

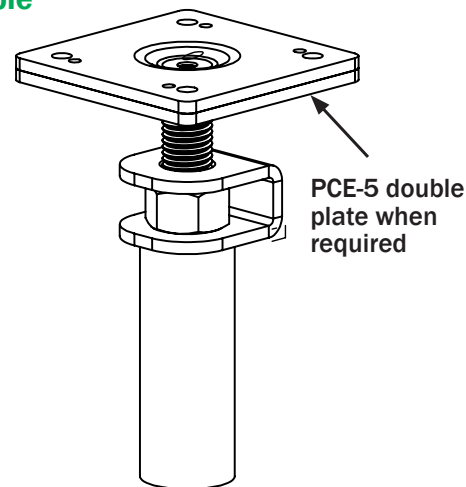
Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1 or P2	AS1 or AS2 + PCE-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	AS1 or AS2 + PCE-5	5" (127 mm)		N/A	0.25" (6.4 mm)



##### AS2 + PCE-5 Double



# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

### AS1 or AS2 + PCE-4 or PCE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate	Double plate	3/8" lag screws	#8 screws	lb. (kN)
P1 or P2	AS1 or AS2 + PCE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	4,000 lb (17.8 kN)	N/A	450 lb (2.0 kN)	Not rated
		3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	
		2 ply - LVL beam	6,000 lb (26.7 kN)	7,900 lb (35.1 kN)	N/A	600 lb (2.7 kN)	
		4 x 4 SPF Post	6,500 lb (28.9 kN)	7,900 lb (35.1 kN)	N/A	N/A	
	AS1 or AS2 + PCE-5	3 ply 2 x ___ SPF Beam	4,300 lb (19.1 kN)	4,500 lb (20.0 kN)	1,200 lb (5.3 kN)	450 lb (2.0 kN)	Not rated
		3 ply - LVL beam	6,000 lb (26.7 kN)	10,400 lb (46.3 kN)	1,500 lb (6.7 kN)	600 lb (2.7 kN)	
		6 x 6 SPF Post	6,500 lb (28.9 kN)	11,000 lb (48.9 kN)	N/A	N/A	

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)
10. Maximum exposed height of threaded rod shall be 4".



# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### A1/2-FIX + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

#### Single bearing plate

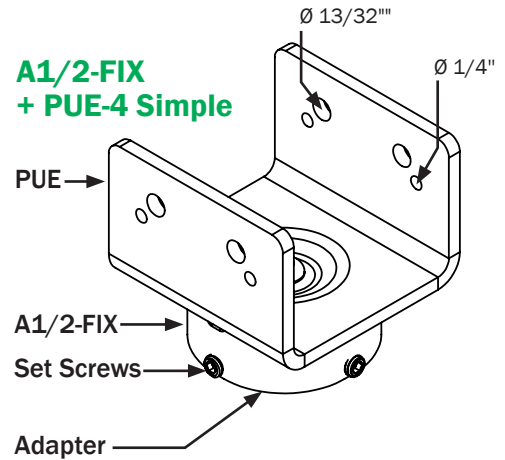
Ultimate Compression / Tension 22 kips / 4 kips

Allowable Compression / Tension 11 kips / 2 kips

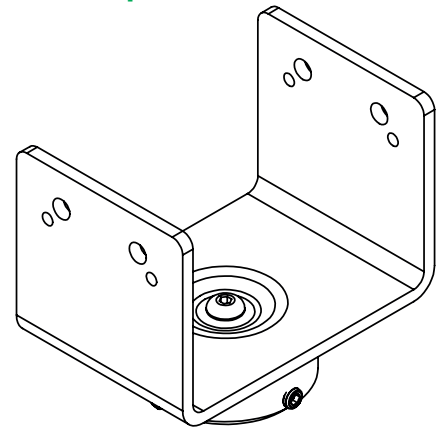
#### Technical Specifications

#### Material (standard) :

Cap	CSA G40.21 / 300W
Adapter	Casted 1018 steel
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123



#### A1/2-FIX + PUE-5 Simple



#### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1, P2 or P2HD	A1/2-FIX + PUE-4	4" (101.6 mm)	3.5625" (90.5 mm)	2.75" (69.9 mm)	0.25" (6.4 mm)
	A1/2-FIX + PUE-5	4" (101.6 mm)	5.5625" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)

# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### A1/2-FIX + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity			
			Compression (Down)	Tension (Uplift)		Lateral
				3/8" lag screws	#8 screws	
P1, P2 or P2HD	A1/2-FIX + PUE-4	2 ply 2 x __ SPF Beam	4,000 lb (17,8 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	700 lb (3.1 kN)
		2 ply - LVL beam	9,000 lb (40,0 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	9,000 lb (40,0 kN)	1,625 lb (7.2 kN)		
	A1/2-FIX+ PUE-5	3 ply 2 x __ SPF Beam	5,000 lb (23,6 kN)	1,025 lb (4.6 kN)	700 lb (3.1 kN)	700 lb (3.1 kN)
		3 ply - LVL beam	11,000 lb (48,9 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	11,000 lb (48,9 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### A3-FIX + PUE-4 or PUE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

#### Single bearing plate

Ultimate Compression / Tension 22 kips / 4 kips

Allowable Compression / Tension 11 kips / 2 kips

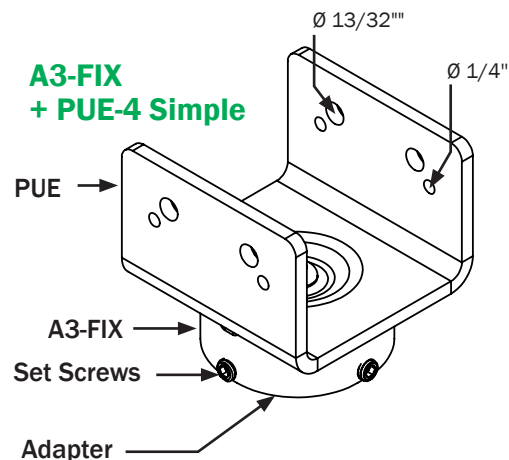
#### Technical Specifications

#### Material (standard) :

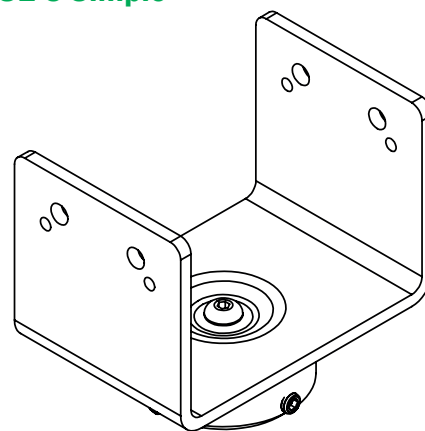
Cap	CSA G40.21 / 300W
Adapter	Casted 1018 steel
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

#### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P3	A3-FIX + PUE-4	4" (101.6 mm)	3.5625" (90.5 mm)	2.75" (69.9 mm)	0.25" (6.4 mm)
	A3-FIX + PUE-5	4" (101.6 mm)	5.5625" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)



A3-FIX + PUE-5 Simple



# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### A3-FIX + PUE-4 or PUE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity			
			Compression (Down)	Tension (Uplift)		Lateral
			Single plate	3/8" lag screws	#8 screws	
P3	A3-FIX + PUE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		2 ply - LVL beam	9,000 lb (40 kN)	1,750 lb (7.8 kN)		
		4 x 4 SPF Post	11,200 lb (49.8 kN)	1,625 lb (7.2 kN)		
	A3-FIX + PUE-5	3 ply 2 x ___ SPF Beam	5,000 lb (22.2 kN)	1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		3 ply - LVL beam	15,000 lb (66.7 kN)	1,750 lb (7.8 kN)		
		6 x 6 SPF Post	15,000 lb (66.7 kN)	1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### A1/2-FIX + PCE-4 or PCE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

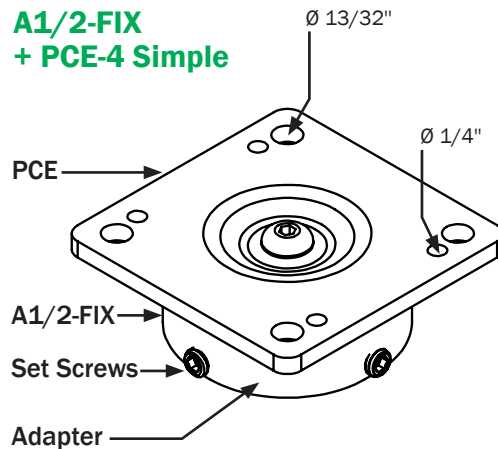
Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

#### Technical Specifications

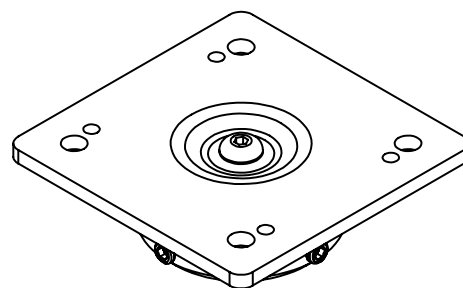
##### Material (standard) :

Cap	CSA G40.21 / 300W
Adapter	Casted 1018 steel
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

A1/2-FIX + PCE-4 Simple



A1/2-FIX + PCE-5 Simple



Pile Caps

##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1, P2 or P2HD	A1/2-FIX + PCE-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	A1/2-FIX + PCE-5	5" (127 mm)		N/A	0.25" (6.4 mm)

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### A1/2-FIX + PCE-4 or PCE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate		3/8" lag screws	#8 screws	
P1, P2 or P2HD	A1/2-FIX + PCE-4	2 ply 2 x ___ SPF Beam	4,000 lb (17,8 kN)		N/A	450 lb (2.0 kN)	700 lb (3.1 kN)
		3 ply 2 x ___ SPF Beam	6,700 lb (29,8 kN)		1,200 lb (5.3 kN)	450 lb (2.0 kN)	
		2 ply - LVL beam	9,000 lb (40,0 kN)		N/A	600 lb (2.7 kN)	
		4 x 4 SPF Post	9,000 lb (40,0 kN)		N/A	N/A	
	A1/2-FIX + PCE-5	3 ply 2 x ___ SPF Beam	5,000 lb (22,2 kN)		1,200 lb (5.3 kN)	450 lb (2.0 kN)	700 lb (3.1 kN)
		3 ply - LVL beam	11,000 lb (48,9 kN)		1,500 lb (6.7 kN)	600 lb (2.7 kN)	
		6 x 6 SPF Post	11,000 lb (48,9 kN)		N/A	N/A	

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### A3-FIX + PCE-4 or PCE-5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

##### Single bearing plate

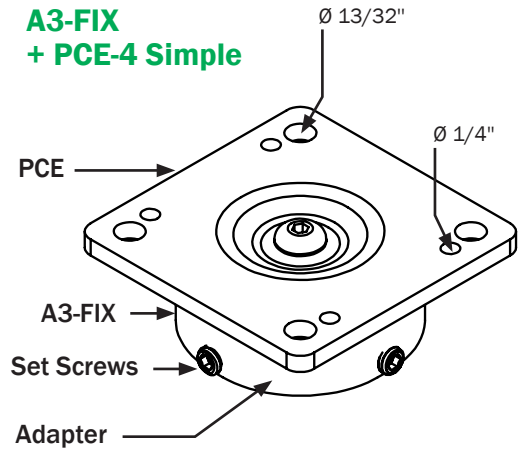
Ultimate Compression / Tension	22 kips / 4 kips
Allowable Compression / Tension	11 kips / 2 kips

#### Technical Specifications

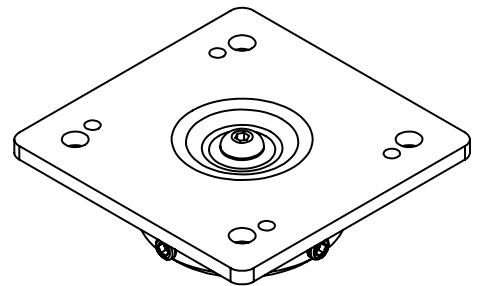
##### Material (standard) :

Cap	CSA G40.21 / 300W
Adapter	Casted 1018 steel
Threaded rod	1" Ø SAE Grade 2
Button head cap screw	3/8" Ø - Grade 5
Socket head set screws	3/8" Ø - Grade 5
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123

A3-FIX + PCE-4 Simple



A3-FIX + PCE-5 Simple



##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P3	A3-FIX + PCE-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	A3-FIX + PCE-5	5" (127 mm)		N/A	0.25" (6.4 mm)

Pile Caps

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### A3-FIX + PCE-4 or PCE-5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)	Tension (Uplift)		Lateral	
			Single plate	3/8" lag screws	#8 screws	1/4" lag screws	#8 screws
P3	A3-FIX + PCE-4	2 ply 2 x __ SPF Beam	4,000 lb (17.8 kN)	N/A	450 lb (2.0 kN)	N/A	700 lb (3.1 kN)
		3 ply 2 x __ SPF Beam	6,700 lb (29.8 kN)	N/A	450 lb (2.0 kN)	850 lb (3.8 kN)	
		2 ply - LVL beam	9,000 lb (40 kN)	N/A	600 lb (2.7 kN)	1,300 lb (5.8 kN)	
		4 x 4 SPF Post	11,200 lb (49.8 kN)	N/A	N/A	1,200 lb (5.3 kN)	
	A3-FIX + PCE-5	3 ply 2 x __ SPF Beam	5,000 lb (22.2 kN)	N/A	450 lb (2.0 kN)	850 lb (3.8 kN)	700 lb (3.1 kN)
		3 ply - LVL beam	15,000 lb (66.7 kN)	N/A	600 lb (2.7 kN)	1,300 lb (5.8 kN)	
		6 x 6 SPF Post	15,000 lb (66.7 kN)	N/A	N/A	1,200 lb (5.3 kN)	

#### Installation instructions and special notes

- Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
- Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft below.
- For wet use multiply table values by 0.7
- Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
- Uplift connection from cap to shaft shall be to apply minimum of 15 ft-lb torque of set screws.
- Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
- Structural Designer is responsible for wood design and verifying capacity of connection to wood members
- Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
- For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)



# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### UF1-4 or 5, UF2-4 or 5

### Application

Used for connecting wood post and beams.

### Mechanical Capacity

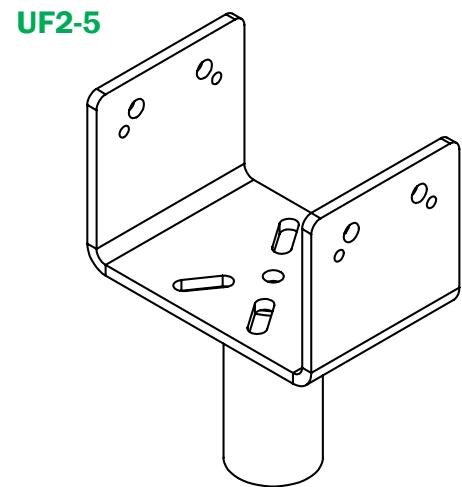
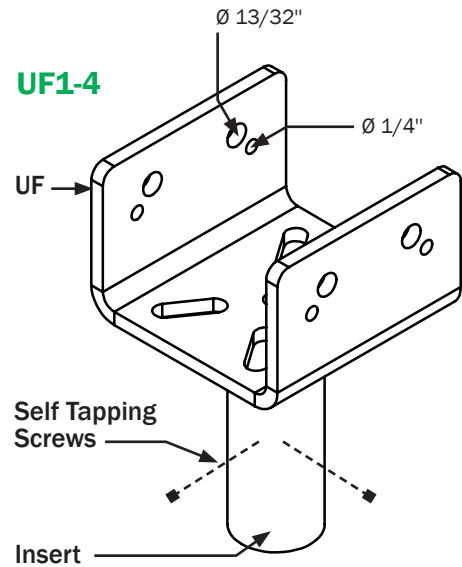
#### Single bearing plate

Ultimate Compression / Tension	18 kips / 4 kips
Allowable Compression / Tension	9 kips / 2 kips

### Technical Specifications

#### Material (standard) :

Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123



#### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P1 or P2	UF1-4 or UF2-4	4" (101.6 mm)	3.5625" (90.5 mm)	2.75" (69.9 mm)	0.25" (6.4 mm)
	UF1-5 or UF2-5	4" (101.6 mm)	5.5625" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)

Pile Caps

# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### UF1-4 or 5, UF2-4 or 5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate		3/8" lag screws	#8 screws	
P1 or P2	UF1-4 or UF2-4	2 ply 2 x ___ SPF Beam	4,000 lb (17,8 kN)		1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		2 ply - LVL beam	6,500 lb (28,9 kN)		1,750 lb (7.8 kN)		
		4 x 4 SPF Post	6,500 lb (28,9 kN)		1,625 lb (7.2 kN)		
	UF1-5 or UF2-5	3 ply 2 x ___ SPF Beam	5,000 lb (22,2 kN)		1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		3 ply - LVL beam	11,000 lb (48,9 kN)		1,750 lb (7.8 kN)		
		6 x 6 SPF Post	11,000 lb (48,9 kN)		1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### UF2.5-4 or 5, UF3-4 or 5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

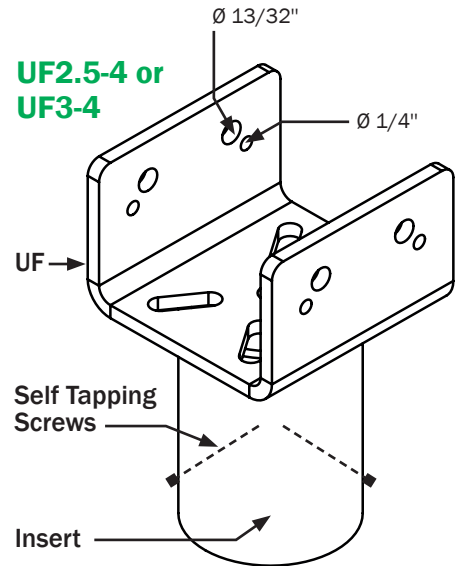
##### Single bearing plate

Ultimate Compression / Tension	30 kips / 4 kips
Allowable Compression / Tension	15 kips / 2 kips

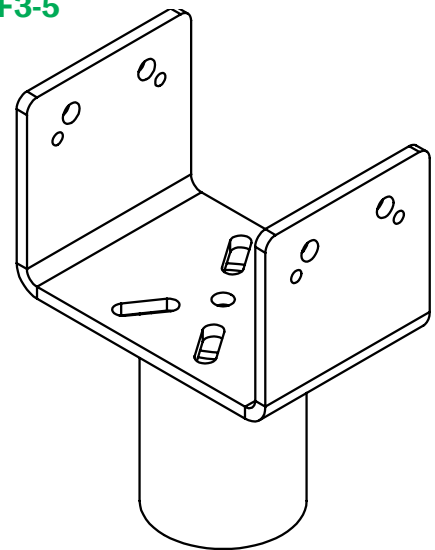
#### Technical Specifications

##### Material (standard) :

Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123



UF2.5-5 or UF3-5



##### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P2.5 or P3	UF2.5-4 or UF3-4	4" (101.6 mm)	3.5625" (90.5 mm)	2.75" (69.9 mm)	0.25" (6.4 mm)
	UF2.5-5 or UF3-5	4" (101.6 mm)	5 - 9/16" (141.3 mm)	4" (101.6 mm)	0.25" (6.4 mm)

Pile Caps

# WOOD STRUCTURE CONNECTORS

## U Plate - Fixed

### UF2.5-4 or 5, UF3-4 or 5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)		Tension (Uplift)		Lateral
			Single plate		3/8" lag screws	#8 screws	
<b>P2.5 or P3</b>	<b>UF2.5-4 or UF3-4</b>	2 ply 2 x __ SPF Beam	4,000 lb (17.8 kN)		1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		2 ply - LVL beam	9,000 lb (40 kN)		1,750 lb (7.8 kN)		
		4 x 4 SPF Post	11,200 lb (49.8 kN)		1,625 lb (7.2 kN)		
	<b>UF2.5-5 or UF3-5</b>	3 ply 2 x __ SPF Beam	5,000 lb (22.2 kN)		1,025 lb (4.6 kN)	700 (3.1)	700 lb (3.1 kN)
		3 ply - LVL beam	15,000 lb (66.7 kN)		1,750 lb (7.8 kN)		
		6 x 6 SPF Post	15,000 lb (66.7 kN)		1,625 lb (7.2 kN)		

#### Installation instructions and special notes

1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### CF2.5-4 or 5, CF3-4 or 5

#### Application

Used for connecting wood post and beams.

#### Mechanical Capacity

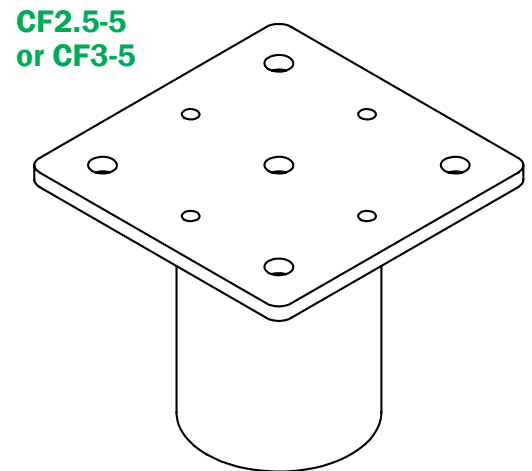
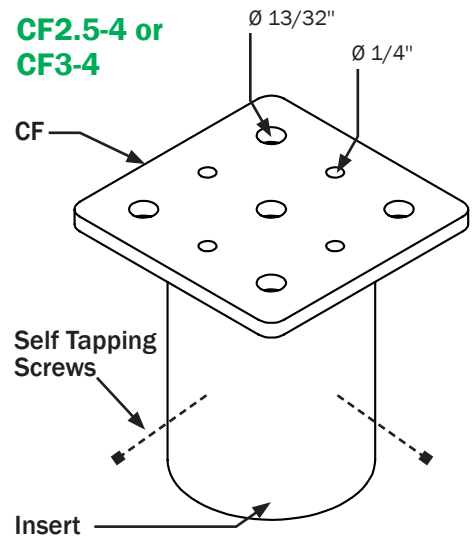
##### Single bearing plate

Ultimate Compression / Tension	30 kips / 4 kips
Allowable Compression / Tension	15 kips / 2 kips

#### Technical Specifications

##### Material (standard) :

Cap	CSA G40.21 / 300W
Insert	ASTM A500 Grade C
Black Steel Design Life	50 years per AC358
Coating	Galvanized
Galvanization compliance	ASTM A123



Pile Caps

#### Geometry :

Pile Model	Model No.	Dimensions			
		Length	Width	Height	Thickness
P2.5 or P3	CF2.5-4 or CF3-4	4" (101.6 mm)	4" (101.6 mm)	N/A	0.25" (6.4 mm)
	CF2.5-5 or CF3-5	5" (127 mm)		N/A	0.25" (6.4 mm)

# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed

### CF2.5-4 or 5, CF3-4 or 5

#### Allowable capacity for common applications :

Pile Model	Model No.	Supported member	Allowable Capacity				
			Compression (Down)	Tension (Uplift)		Lateral	
			Single plate	3/8" lag screws	#8 screws	1/4" lag screws	#8 screws
P2.5 or P3	CF2.5-4 or CF3-4	2 ply 2 x ___ SPF Beam	4,000 lb (17.8 kN)	N/A	450 lb (2.0 kN)	N/A	700 lb (3.1 kN)
		3 ply 2 x ___ SPF Beam	6,700 lb (29.8 kN)	N/A	450 lb (2.0 kN)	850 lb (3.8 kN)	
		2 ply - LVL beam	9,000 lb (40 kN)	N/A	600 lb (2.7 kN)	1,300 lb (5.8 kN)	
		4 x 4 SPF Post	11,200 lb (49.8 kN)	N/A	N/A	1,200 lb (5.3 kN)	
	CF2.5-5 or CF3-5	3 ply 2 x ___ SPF Beam	5,000 lb (22.2 kN)	N/A	450 lb (2.0 kN)	850 lb (3.8 kN)	700 lb (3.1 kN)
		3 ply - LVL beam	15,000 lb (66.7 kN)	N/A	600 lb (2.7 kN)	1,300 lb (5.8 kN)	
		6 x 6 SPF Post	15,000 lb (66.7 kN)	N/A	N/A	1,200 lb (5.3 kN)	

#### Installation instructions and special notes

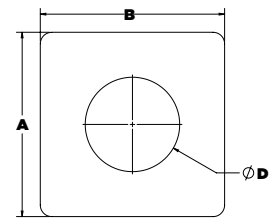
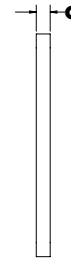
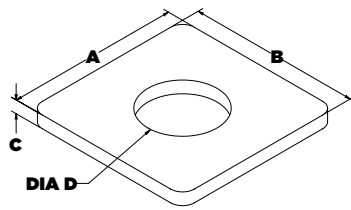
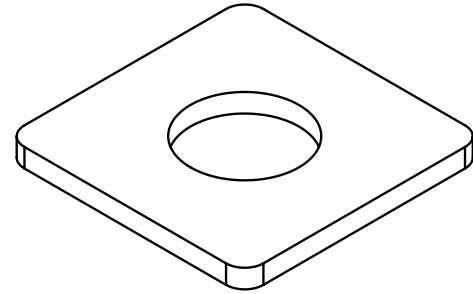
1. Allowable tension and lateral capacity are based on NDS code and load duration Cd=1.6
2. Allowable compression capacity are based on NDS code and internal testing. Cap must directly bear on shaft.
3. For wet use multiply table values by 0.7
4. Use all specified fasteners (or approved equivalent) lag screws 3/8" Ø x 3" long or wood screws #8 x 2" long
5. Uplift connection from cap to shaft shall be self-tapping screws (3 x UCAN self drilling screws, size 12-24, drill point #5 or equivalent) or 3/16" fillet weld all around (E70XX)
6. Capacity above 7,000 lb must be limited to 1/4" misalignment. For capacity below 7,000 lb, pile installation tolerances must be within 1/2" of misalignment and ± 1° of inclination.
7. Structural Designer is responsible for wood design and verifying capacity of connection to wood members
8. Loads shall be reduced where limited by capacity of the wood and/or capacity of the installed pile
9. For any questions regarding uplift, lateral and compression capacities please contact TMP Engineers at [eng.usa@technometalpost.com](mailto:eng.usa@technometalpost.com)

# ALL STRUCTURE CONNECTORS

## Flat Plate - Welded CP

### Technical Specifications

Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



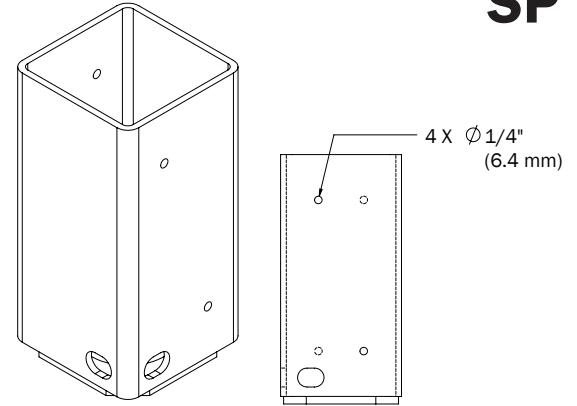
Pile Caps

Pile Model	Plate Dimensions			
	Length	Width	Thickness	Hole size
	A	B	C	D
<b>P2 and P2HD</b>	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	2.5" (63.5 mm)
	6" (152 mm)	6" (152 mm)	0.5" (12.7 mm)	
	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	
<b>P2.5</b>	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	3.0" (76.2mm)
	6" (152 mm)	6" (152 mm)	0.5" (12.7 mm)	
	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	
<b>P3 and P3HD</b>	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	3.625" (92.1 mm)
	6" (152 mm)	6" (152 mm)	0.5" (12.7 mm)	
	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	
<b>P4 and P4HD</b>	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4.125" (104.8 mm)
	6" (152 mm)	6" (152 mm)	0.5" (12.7 mm)	
	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	
<b>P5</b>	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	5.6875" (144.5 mm)
<b>P6</b>	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	6.75" (171.5 mm)

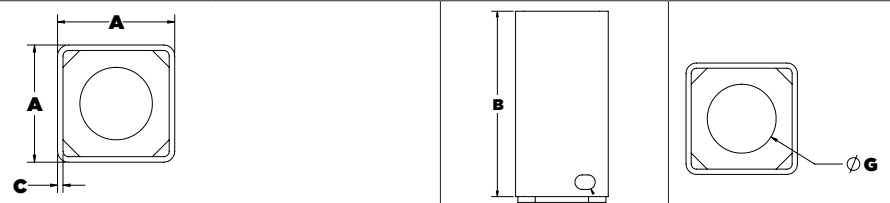
### Technical Specifications

Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Black Steel Design Life	50 years per AC308
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

Other available sizes upon request



Pile Caps



Pile Model	Type of wood	Box Dimensions (interior)				Hole Size
		Length / Width	Thickness	Height		
		A	C	B		
<b>P2 and P2HD</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	2.5" (63.5 mm)	
		5.625" (142.9 mm)				
		7.625" (193.7 mm)				
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)		
		6.09" (154.7 mm)				
		8.09" (205.5 mm)				
<b>P2.5</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	3.0" (76.2 mm)	
		5.625" (142.9 mm)				
		7.625" (193.7 mm)				
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)		
		6.09" (154.7 mm)				
		8.09" (205.5 mm)				
<b>P3 and P3HD</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	3.625" (92.1 mm)	
		5.625" (142.9 mm)				
		7.625" (193.7 mm)				
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)		
		6.09" (154.7 mm)				
		8.09" (205.5 mm)				
<b>P4 and P4HD</b>	Lumber (S4S, BQ)	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	4.25" (108 mm)	
		7.625" (193.7 mm)				
	Rough (RS, BB)	6.09" (154.7 mm)	0.25" (6.4 mm)	8" (203 mm)		
		8.09" (205.5 mm)				
<b>P5</b>	Lumber (S4S, BQ)	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	5.6875" (144.5 mm)	
		7.625" (193.7 mm)				
	Rough (RS, BB)	6.09" (154.7 mm)	0.25" (6.4 mm)	8" (203 mm)		
		8.09" (205.5 mm)				



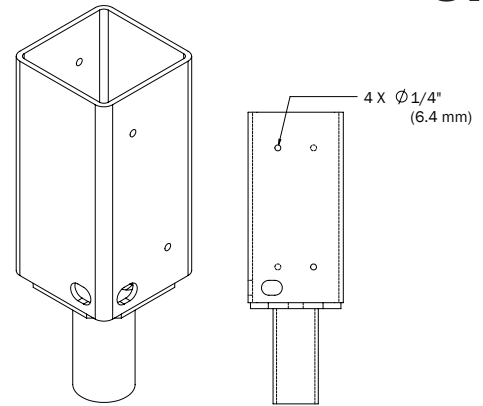
# WOOD STRUCTURE CONNECTORS

## Box - Fixed SPA

### Technical Specifications

Plate Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Adapter Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC308
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

Other sizes available upon request.



Pile Model	Type of Wood	Box Dimensions (interior)			Adapter Dimensions		
		Length / Width	Thickness	Height	Height	O.D.	Thickness
		A	C	B	D	E	F
<b>P2 and P2HD</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)
		5.625" (142.9 mm)					
		7.625" (193.7 mm)					
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)			
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
<b>P2.5</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.16 mm)
		5.625" (142.9 mm)					
		7.625" (193.7 mm)					
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)			
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
<b>P3 and P3HD</b>	Lumber (S4S, BQ)	3.625" (92.1 mm)	0.1875" (4.8 mm)	8" (203 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
		5.625" (142.9 mm)					
		7.625" (193.7 mm)					
	Rough (RS, BB)	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)			
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
<b>P4</b>	Lumber (S4S, BQ)	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	4" (102 mm)	3.5" (88.9 mm)	0.216" (5.5 mm)
		7.625" (193.7 mm)					
	Rough (RS, BB)	6.09" (154.7 mm)	0.25" (6.4 mm)	8" (203 mm)			
		8.09" (205.5 mm)					
<b>P5</b>	Lumber (S4S, BQ)	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	4" (102 mm)	4.5" (114.3 mm)	0.237" (6 mm)
		7.625" (193.7 mm)					
	Rough (RS, BB)	6.09" (154.7 mm)	0.25" (6.4 mm)	8" (203 mm)		5" (127 mm)	0.250" (6.4 mm)
		8.09" (205.5 mm)					

Pile Caps

# WOOD STRUCTURE CONNECTORS

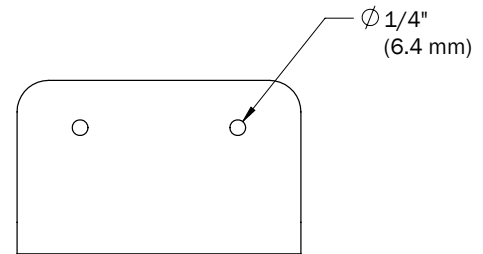
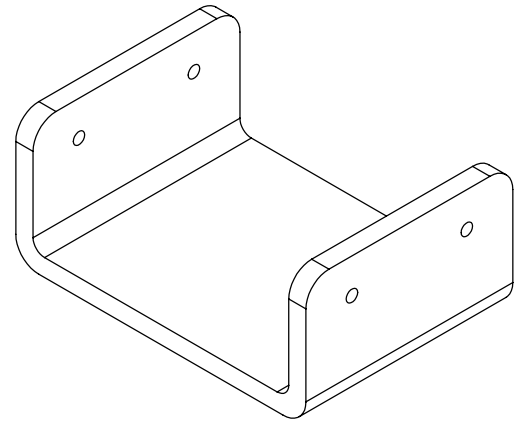
## U Plate - ICC Bracket

### PU4 or PU5, PUB

#### Technical Specifications

Code Evaluation	Listed per ICC-ES (ESR-3418)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

No adapter required if U saddle is welded to TMP



Pile Caps

Plate Number for P3 or P3HD	Plate Dimensions				Adapter Dimensions (if bolted to TMP)			Max. Allowable Capacity
	Length	Width (inside)	Thickness	Height	Height	Out. Diameter	Thickness	
	A	B	C	D	E	F	G	
<b>PU4</b> <b>PU4B</b>	4.5" (114.3 mm)	3.625" (111.1 mm)	0.375" (9.5 mm)	2.625" (66.7 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	See report (ESR-3418)  <a href="http://technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf">technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf</a>
<b>PU5</b> <b>PU5B</b>	4.5" (114.3 mm)	5.625" (142.9 mm)	0.375" (9.5 mm)	3.25" (82.6 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	

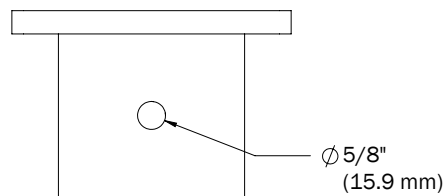
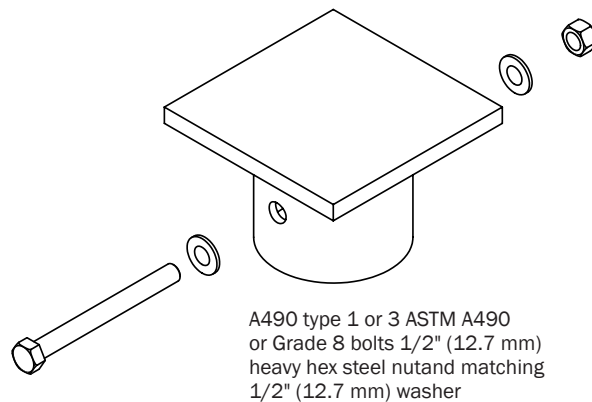
# STEEL STRUCTURE CONNECTORS

## ICC Bracket for I-Beam

### PIB

### Technical Specifications

Code Evaluation	Listed per ICC-ES (ESR-3418)
Plate Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Adapter Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



Pile Caps

Pile Model	Plate Dimensions			Adapter Dimensions			Max. Allowable Capacity
	Length	Width	Thickness	Height	Out. Diameter	Thickness	
	A	B	C	D	E	F	
P3 or P3HD	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	See report (ESR-3418)  <a href="https://www.technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf">technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf</a>
	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)				
	8" (203.2 mm)	8" (203.2 mm)	0.75" (19.0 mm)				

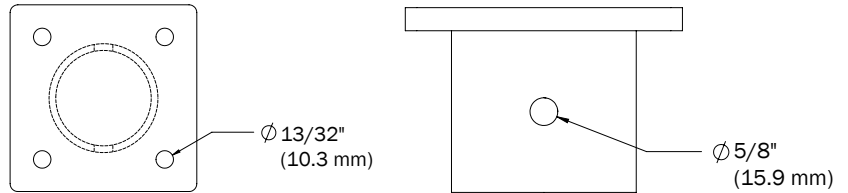
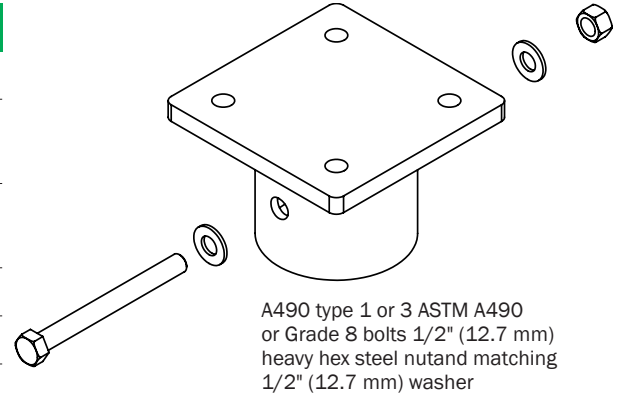
# STEEL STRUCTURE CONNECTORS

## ICC Bracket for Steel columns

### PSC

### Technical Specifications

Code Evaluation	Listed per ICC-ES (ESR-3418)
Plate Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Adapter Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



Pile Model	Plate Dimensions			Adapter Dimensions			Max. Allowable Capacity
	Length	Width	Thickness	Height	Out. Diameter	Thickness	
	A	B	C	D	E	F	
P3 or P3HD	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	See report (ESR-3418)  <a href="https://www.technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf">technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf</a>
	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)				
	8" (203.2 mm)	8" (203.2 mm)	0.75" (19.0 mm)				

# CONCRETE STRUCTURE CONNECTORS

## Flat Plate - ICC Bracket for concrete slab

### PC-ICC

### Technical Specifications

Code Evaluation Listed per ICC-ES (ESR-3418)

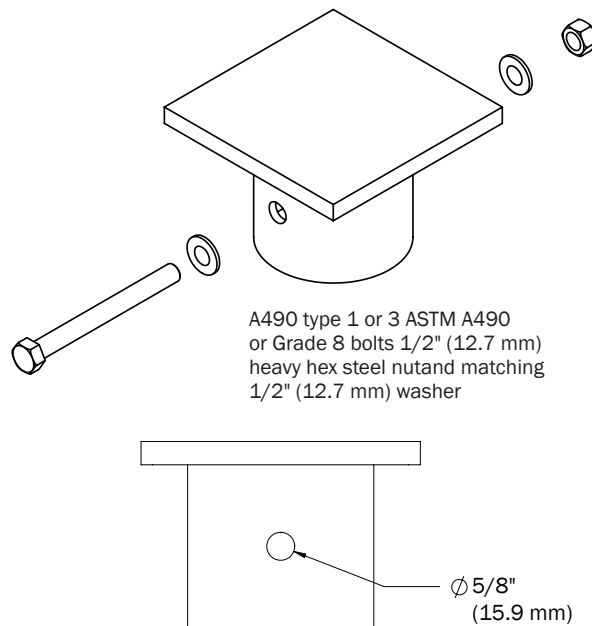
Plate Standard Steel CSA G40.21-44W  
Fy=44 ksi min (300 MPa)

Adapter Standard Steel ASTM A500 Grade C  
Fy=51 ksi min (350 MPa)

Black Steel Design Life 50 years per AC358

Coating Galvanized or Black Steel

Galvanization Compliance ASTM A123



Pile Caps

Pile Model	Plate Dimensions			Adapter Dimensions			Max. Allowable Capacity
	Length	Width	Thickness	Height	Out. Diameter	Thickness	
	A	B	C	D	E	F	
P3 or P3HD	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	See report (ESR-3418)  <a href="https://www.technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf">technopieux.com/wp-content/uploads/2021/08/ESR-3418.pdf</a>
	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)				
	8" (203.2 mm)	8" (203.2 mm)	0.75" (19.0 mm)				

# CONCRETE STRUCTURE CONNECTORS

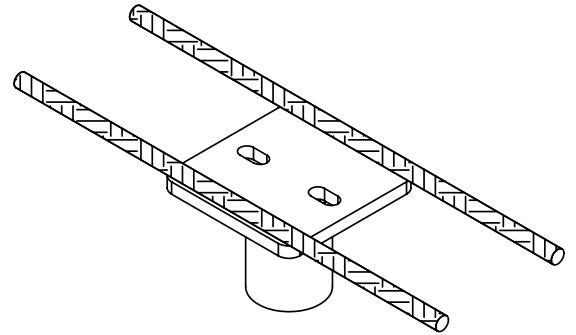
## Flat Plate - With Horizontal Rebar

### Application

Used to connect to concrete footings, grade beam, or slabs.

### Technical Specifications

Code Evaluation	Listed per ICC-ES (ESR-3418)
Plate Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Adapter Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Rebar Standard Steel	CSA G30.18-58W Fy=58 ksi min (400 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



### Geometry / Allowable Capacity

Pile Model	Model number	Quantity of Rebar	Plate Dimensions	Allowable Capacity (kips)
				Compression
<b>P2</b>	CF2-5N-2A	2 # 5 x 20" long	5" x 5" x 0.375"	30
<b>P2.5</b>	CF2.5-6N-2A		5" x 5" x 0.375"	30
<b>P3 or P3HD</b>	CF3-6N-2A		6" x 6" x 0.5"	40
<b>P4</b>	CF4-6N-2A		6" x 6" x 0.5"	40
<b>P5</b>	CF5-6N-2A		6" x 6" x 0.5"	40

### Installation Instruction

- Capacity is based upon minimum 12 inches of concrete above cap plate. Cap plate is embedded 4" into concrete, and has minimum 4 inches edge distances.
- Capacities assume 4 inches edge distance to concrete support surfaces.
- For use in slabs, or other applications that do not meet minimum concrete cover requirements contact TMP Engineering.

# CONCRETE STRUCTURE CONNECTORS

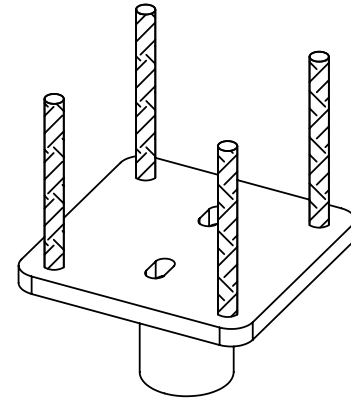
## Flat Plate - With Vertical Rebar

### Application

Used to connect to concrete footings, grade beam, or slabs.

### Technical Specifications

Plate Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Adapter Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Rebar Standard Steel	CSA G30.18-58W Fy=58 ksi min (400 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



### Geometry / Allowable Capacity

Pile Model	Quantity of Rebar	Plate Dimensions	Allowable Capacity (kips)
			Compression
<b>P2</b>	4 # 5 x Variable	5" x 5" x 0.375"	30
<b>P2.5</b>		5" x 5" x 0.375"	30
<b>P3 or P3HD</b>		6" x 6" x 0.5"	40
<b>P4</b>		6" x 6" x 0.5"	40
<b>P5</b>		6" x 6" x 0.5"	40

### Installation Instruction

- Capacity is based upon minimum 12 inches of concrete above cap plate. Cap plate is embedded 4" into concrete, and has minimum 4 inches edge distances.
- Capacities assume 4 inches edge distance to concrete support surfaces.
- For use in slabs, or other applications that do not meet minimum concrete cover requirements contact TMP Engineering.

# CONCRETE STRUCTURE CONNECTORS

## Coupling with Vertical Rebar

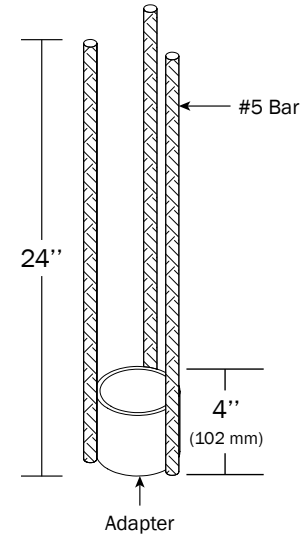
### RC2-2, RC2.5-2, RC3-2 or RC3-3

#### Application

Used to connect to concrete structures such as concrete grade beams and isolated sono-tube pile caps.

#### Technical Specifications

Adapter Standard Steel	ASTM A500 GRADE C
Reinforcing Steel	A706 GR60 (CSA G30.18.58W)
Black Steel Design Life	50 years per AC358
Coating	Galvanized per ASTM 123 or Black Steel



#### Geometry / Allowable Capacity

Pile Model	Cap Model No.	Quantity of #5 Bars	Adapter	Allowable Capacity (kips)	
				Compression	Tension
<b>P2 or P2HD</b>	RC2-2	2	2.875" (73.0 mm) x 0.203" (5.16 mm)	20.0	17.5
<b>P2.5</b>	RC2.5-2	2	3.5" (88.9mm) x 0.216" (5.49mm)	20.0	17.5
<b>P3 or P3HD</b>	RC3-2	2	4.000" (101.6 mm) x 0.226" (5.74 mm)	20.0	17.5
	RC3-3	3		30.0	26.0

#### Installation Instruction

1. Minimum concrete cover is 2 inches (cast against forms) and 3 inches (cast against earth) or as specified by project engineer.
2. Connects to TMP Shaft with 3/16" fillet weld all around perimeter.
3. Welds on galvanized steel shall have coat of Zinc-Rich paint as specified by paint manufacturer.
4. Capacity is based upon  $F'_c = 2500$  psi minimum and  $FS = 1.67$ .



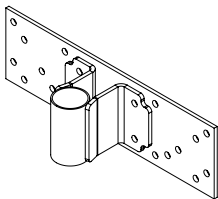
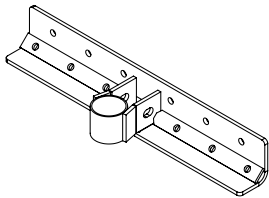
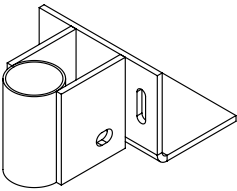
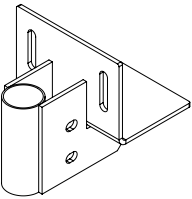
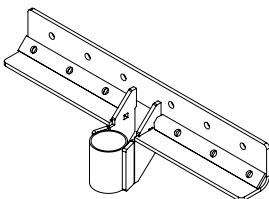
# FOUNDATION REPAIR BRACKETS

## General informations

### SM

#### Technical Specifications

Code Evaluation	Listed per IAPMO ER 481 (SM-1, SM-3, SM-4)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123

Pile Model	Bracket Model	Drawing	Dimensions			Max. Allowable Capacity	Ultimate
			A	B	C		
P3 or P3HD	<b>SM-1</b> Concrete Wall #1		See shop drawings p.74			30	60
P3 or P3HD	<b>SM-2</b> Concrete Masonry Unit (CMU) Wall #2		See shop drawings p.75			19	38
P3 or P3HD	<b>SM-3</b> Concrete Masonry Unit (CMU) Wall #3		See shop drawings p.76			17	34
P3 or P3HD	<b>SM-4</b> Concrete Masonry Unit (CMU) Wall #4		See shop drawings p.77			22	44
P3 or P3HD	<b>SM-5</b> Interior Concrete Wall #5		See shop drawings p.78			26	52

Foundation Repair Brackets

# FOUNDATION REPAIR BRACKETS

## Concrete Wall #1 SM-1

### Application

Underpinning bracket used to stabilize or lift concrete foundation walls

### Mechanical capacity

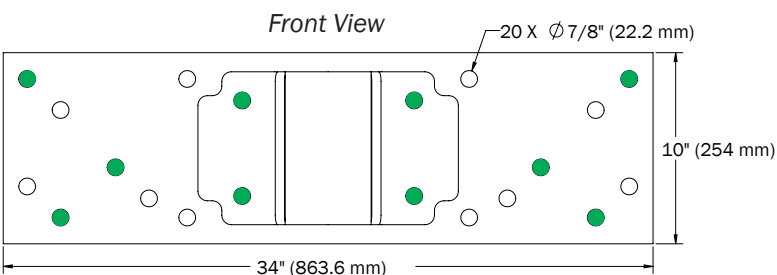
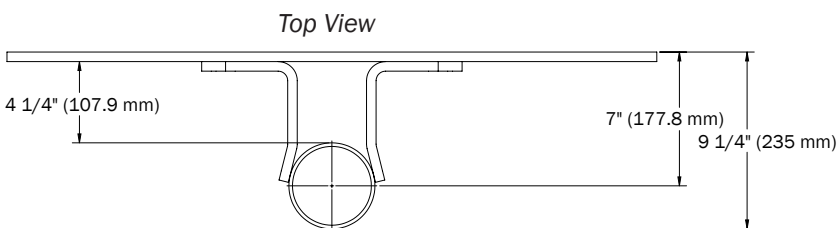
Ultimate Compression 60 kips

Allowable compression 30 kips

### Technical Specifications

Material specifications are available upon request.

### Geometry Wall Bracket (SM-1)



Jack Support (SV)  
For pre-loading  
and lifting only

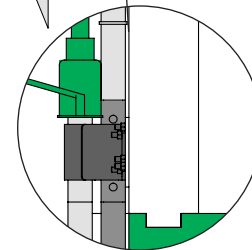
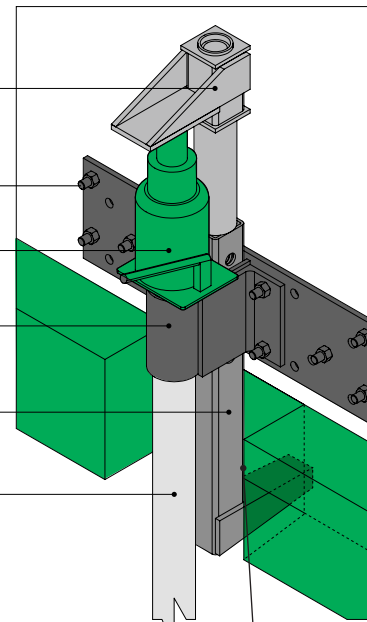
Mechanical Anchor  
Bolts 3/4" x 8"  
(19 mm x 203 mm)

Hydraulic Jack  
For preloading  
and lifting only

Wall Bracket (SM-1)

Footing Leg (SE)  
required

Helical Pile (P3)  
Extension



Side View

- Primary bolt locations
- Alternate bolt locations

### Installation Instructions

1. Locate and clear all utilities.
2. Excavate in a safe manner to base of the footing.
3. Cut and chip footing back to face of wall.
4. Partially install helical pile lead section.
5. Position wall bracket and footing leg.
6. Bolt wall bracket to wall.
7. Continue helical pile installation as required to meet load.
8. Cut off pile to desired height.
9. Preload, lift as needed, and weld off all connections.

# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #2

### SM-2

#### Application

Underpinning bracket to stabilize or lift masonry and concrete foundations that are supported on concrete spread footings.

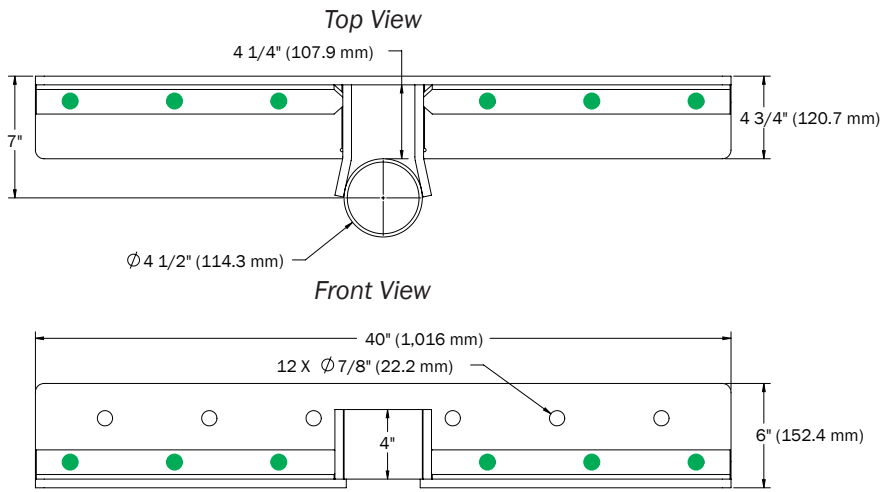
#### Mechanical capacity

Ultimate Compression	38 kips
Allowable compression	19 kips

#### Technical Specifications

Material specifications are available upon request.

#### Geometry Wall Bracket (SM-2)



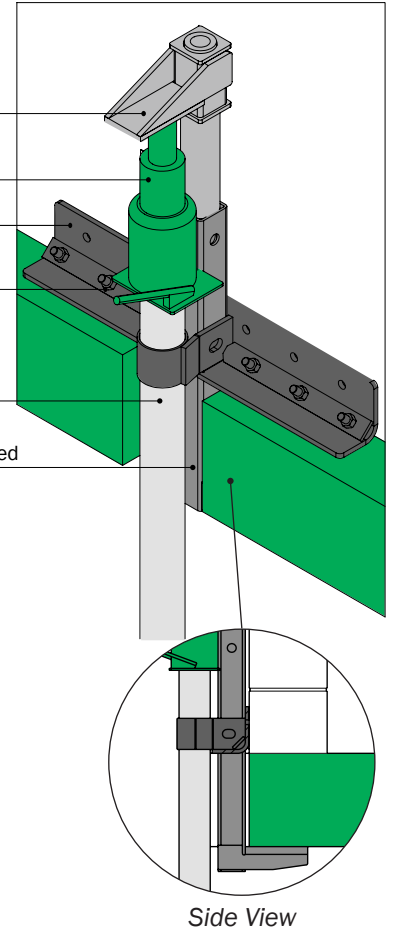
Jack Support (SV)  
For pre-loading and lifting only

Hydraulic Jack  
For preloading and lifting only

Wall Bracket (SM-2)  
Mechanical Anchor Bolts 3/4" x 8"  
(19 mm x 203 mm)

Helical Pile (P3)  
Extension

Footing Leg (SE) required



Foundation Repair Brackets

#### Installation Instructions

1. Locate and clear all utilities.
2. Excavate in a safe manner to base of the footing.
3. Cut and chip footing back to face of wall.
4. Partially install helical pile lead section.
5. Position wall bracket and footing leg.
6. Bolt wall bracket to wall.
7. Continue helical pile installation as required to meet load.
8. Cut off pile to desired height.
9. Preload, lift as needed, and weld off all connections.

# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #3

### SM-3

### Application

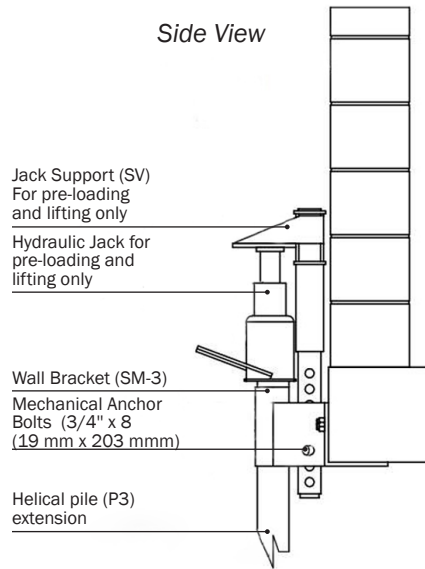
Underpinning bracket to stabilize or lift masonry and concrete foundations that are supported on concrete spread footings.

### Mechanical capacity

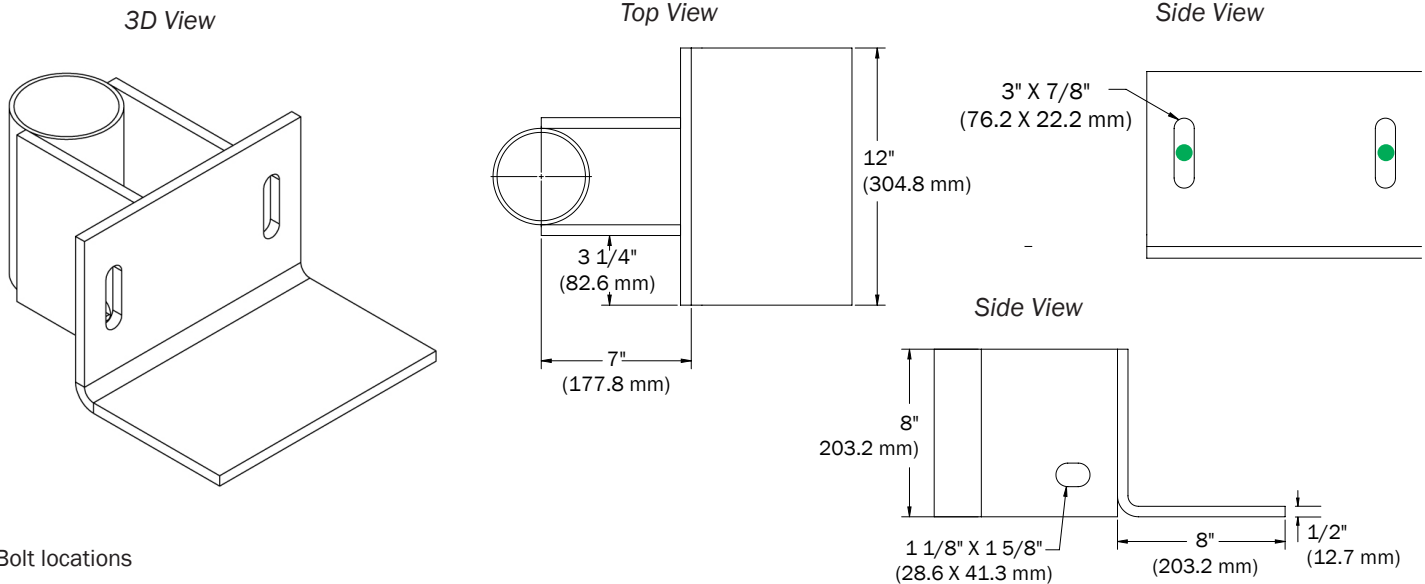
Ultimate Compression	34 kips
Allowable compression	17 kips

### Technical Specifications

Material specifications are available upon request.



### Geometry Wall Bracket (SM-3)



● Bolt locations

### Installation Instructions

1. Locate and clear all utilities.
2. Excavate in a safe manner to base of the footing.
3. Cut and chip footing back to face of wall.
4. Partially install helical pile lead section.
5. Position wall bracket and footing leg.
6. Bolt wall bracket to wall.
7. Continue helical pile installation as required to meet load.
8. Cut off pile to desired height.
9. Preload, lift as needed, and weld off all connections.

# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #4 SM-4

### Application

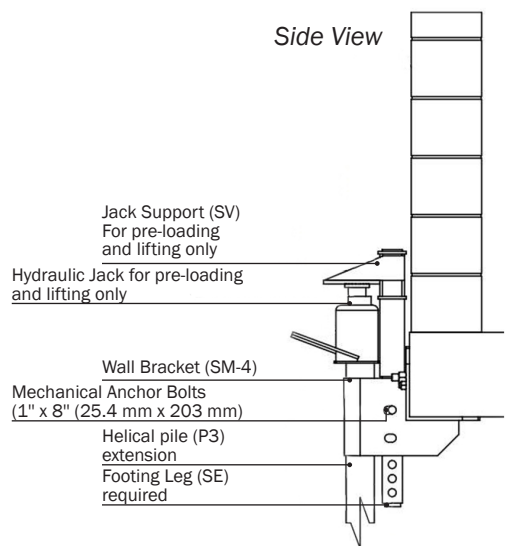
Underpinning bracket to stabilize or lift masonry and concrete foundations that are supported on concrete spread footings.

### Mechanical capacity

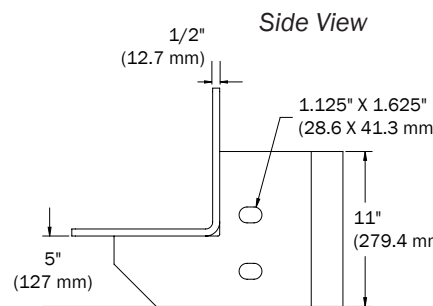
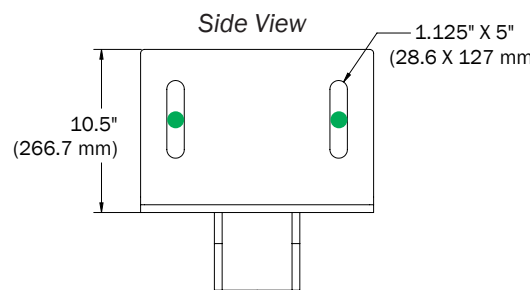
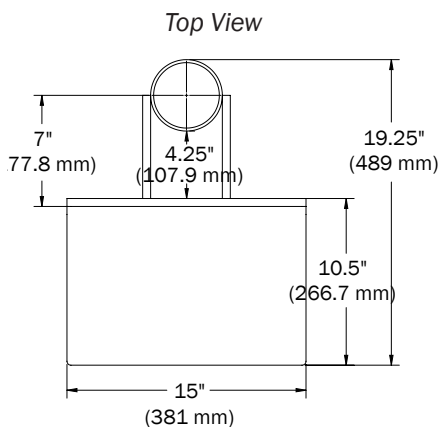
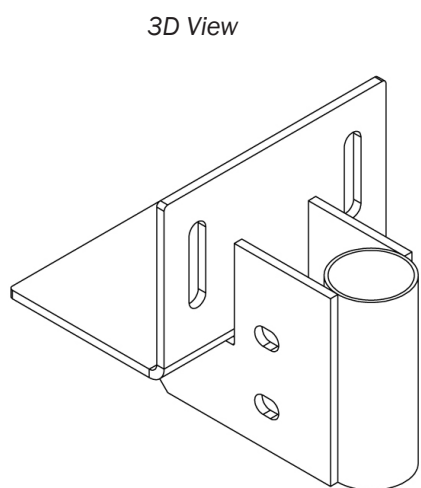
Ultimate Compression	44 kips
Allowable compression	22 kips

### Technical Specifications

Material specifications are available upon request.



### Geometry Wall Bracket (SM-4)



● Bolt locations

### Installation Instructions

1. Locate and clear all utilities.
2. Excavate in a safe manner to base of the footing.
3. Cut and chip footing back to face of wall.
4. Partially install helical pile lead section.
5. Position wall bracket and footing leg.
6. Bolt wall bracket to wall.
7. Continue helical pile installation as required to meet load.
8. Cut off pile to desired height.
9. Preload, lift as needed, and weld off all connections.

Foundation Repair Brackets

# FOUNDATION REPAIR BRACKETS

## Interior Concrete Wall #5

### SM-5

### Application

Underpinning bracket to stabilize or lift masonry and concrete foundations that are supported on concrete spread footings.

### Mechanical capacity

Ultimate Compression 52 kips

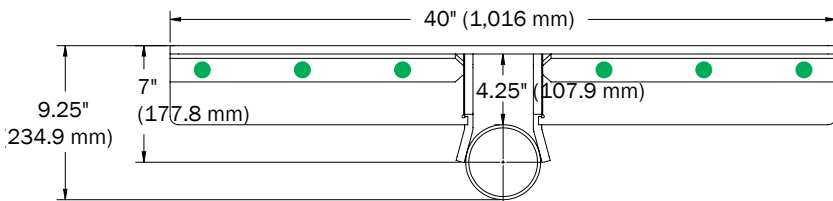
Allowable compression 26 kips

### Technical Specifications

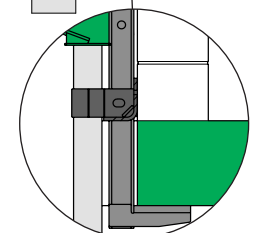
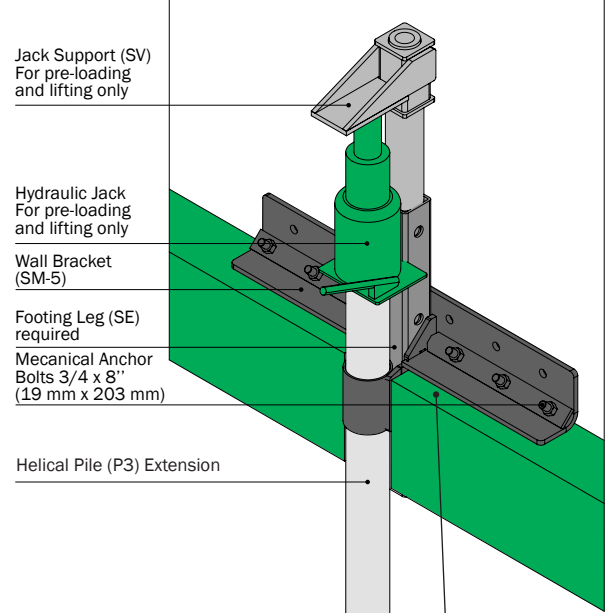
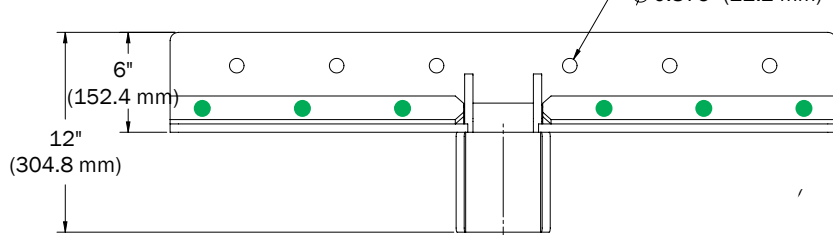
Material specifications are available upon request.

### Geometry Wall Bracket (SM-5)

Top View



Front View



Side View

- Primary bolt locations
- Alternate bolt locations

### Installation Instructions

1. Locate and clear all utilities.
2. Excavate in a safe manner to base of the footing.
3. Cut and chip footing back to face of wall.
4. Partially install helical pile lead section.
5. Position wall bracket and footing leg.
6. Bolt wall bracket to wall.
7. Continue helical pile installation as required to meet load.
8. Cut off pile to desired height.
9. Preload, lift as needed, and weld off all connections.

Foundation Repair Brackets



## R2D

**Dimensions (L x W x H):**  
98 1/2" x 29" x 59" (2,500 mm x 760 mm x 1,500 mm)

**Weight:**  
1,653 lb (750 kg)

**Maximal height of mast:**  
133 7/8" (3,400 mm)

**Mast rotation:**  
± 60°

**Minimum clearing required for installation:**  
7" (178 mm)

**Maximal allowable bearing capacity in compression per installed TMP helical pile:**  
± 23 kips

**Maximum torque:**  
± 5,500 ft-lb



## EM1

**Dimensions (L x W x H):**  
93" x 48" x 66" (2,362 mm x 1,219 mm x 1,676 mm)

**Weight:**  
4,464 lbs (2,025 kg)

**Maximal height of mast:**  
145" (3,683 mm)

**Mast rotation:**  
360°

**Minimum clearing required for installation:**  
8" (203 mm)

**Maximal allowable bearing capacity in compression per installed TMP helical pile:**  
± 33 kips

**Maximum torque:**  
± 9,000 ft-lb



## EM2

**Dimensions (L x W x H):**  
106" x 48" x 68" (2,692 mm x 1,219 mm x 1,727 mm)

**Weight:**  
6,000 lb (2,722 kg)

**Maximal height of mast:**  
147" (3,733 mm)

**Mast rotation:**  
360°

**Minimum clearing required for installation:**  
8" (203 mm)

**Maximal allowable bearing capacity in compression per installed TMP helical pile:**  
± 33 kips

**Maximum torque:**  
± 9,000 ft-lb



## ET1

**Dimensions (L x W x H):**  
168" x 68" x 84" (4,267 mm x 1,727 mm x 2,133 mm)

**Weight:**  
8,900 lb (4,572 kg)

**Maximal height of mast:**  
180" (4,572 mm)

**Mast rotation:**  
360°

**Minimum clearing required for installation:**  
9" (229 mm)

**Maximal allowable bearing capacity in compression per installed TMP helical pile:**  
± 50 kips

**Maximum torque:**  
± 14,500 ft-lb







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