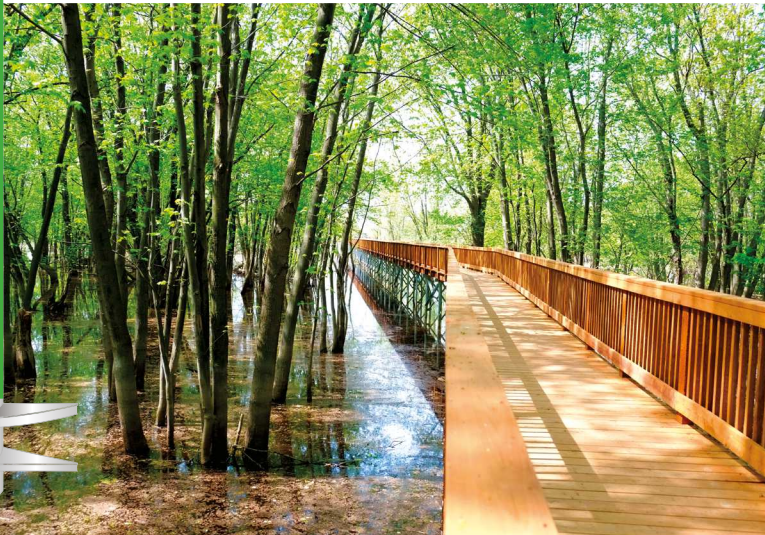
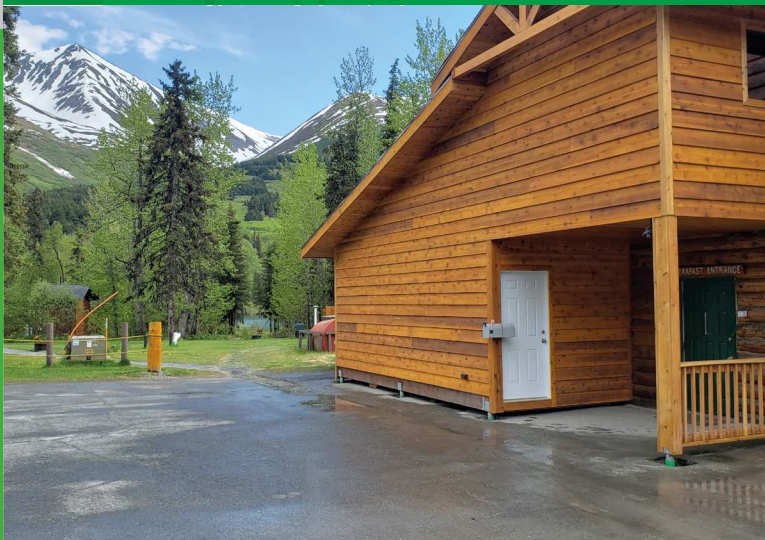


# WORLD LEADER IN HELICAL PILES

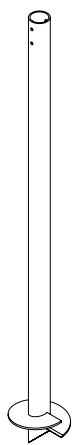











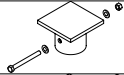
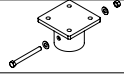

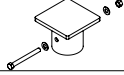







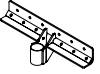



## SPEC BOOK



- Certifications
- Helical Piles
- Extensions
- Pile Caps
- Foundation Repair Brackets
- Installation Equipment

# TABLE OF CONTENTS

Introduction				Page
About Us / Quality Manufacturing				4
Disclaimer Limitation of Liability				Page
General Limitations				5
Certifications	Name	Code	Page	
	United States	ICC-ES, IAPMO	6	
	Around the World	ISO 9001, CCMC, CWB, CCFAT, BSI, BBA	7	
Helical Piles	Ø Outside Diameter	Pile Model	Drawing	Page
	General Information	P1 to P6		8
	1.9" (48.3 mm)	P1		9
	2.4" (60.3 mm)	P2		11
	3.5" (88.9 mm)	P3		13
	3.5" (88.9 mm) Heavy-Duty	P3-HD		15
	4" (101.6 mm)	P4		17
	4" (101.6 mm) Heavy-Duty	P4-HD		19
	5.6" (141.3 mm)	P5		21
	6.6" (168.3 mm)	P6		23
Extensions				
		R		25
Pile Caps	Name	Code	Drawing	Page
<b>Wood Structure Connectors</b>	Flat Plate - Fixed	CF		27
	Flat Plate - Adjustable	CAS		28
	Flat Plate - Welded	CP		29
	U Plate - ICC Bracket for Wood Beams	PU		30
	U Plate - Fixed	UF		31
	U Plate - Adjustable	UAS		32
	Box - Fixed	SP		33
	Box - Adjustable	SPA		34

<b>Pile Caps</b>				
	Name	Code	Drawing	Page
<b>Steel Structure Connectors</b>	Flat Plate - Welded	CP		29
	Flat Plate - ICC Bracket for I-Beam	PIB		35
	Flat Plate - ICC Bracket for Steel Columns	PSC		36
<b>Concrete Construction Connectors</b>	Flat Plate - Welded	CP		29
	Flat Plate - ICC Bracket for Concrete Slab	PC-ICC		37
	Flat Plate with Horizontal Rebar			38
	Flat Plate with Vertical Rebar			39
	Coupling with Vertical Rebar	RC		40
<b>Foundation Repair Brackets</b>				
	Name	Code	Drawing	Page
	General Drawings	SM		41
	Concrete Wall #1	SM-1		42
	Concrete Masonry Unit (CMU) Wall #2	SM-2		43
	Concrete Masonry Unit (CMU) Wall #3	SM-3		44
	Concrete Masonry Unit (CMU) Wall #4	SM-4		45
	Interior Concrete Wall #5	SM-5		46
<b>Installation Equipment</b>				
	Name	Code		Page
	Smallest Machine	R2D		47
	Mid-sized Machine	EM1		47
	Heavy-duty Machine	ET1		47

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 fore front of cutting-edge technology in the design and manufacturing of helical piles and installation equipment for over 25 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. As well, 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 the manufacturing of its piles. Techno Metal Posts helical piles are manufactured using structural steel according to ASTM A500 grade C, CSA G40.21-44W. They are also welded according to CWB, CSA Standard W47.1. 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 the calculated 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 (4x4, 6x6, two plies, three plies). Techno Metal Post has also developed new construction pile caps with integrated rebar when using helical piles to pin concrete foundations to deeply located load bearing soil. 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 exact 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 control on the installation of that product. Professionally trained, certified installers and highly specialized, skilled engineers ensure the proper installation of Techno Metal Post'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 25 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, Pologne, and French Polynesia.

### ENGINEERING TEAMS

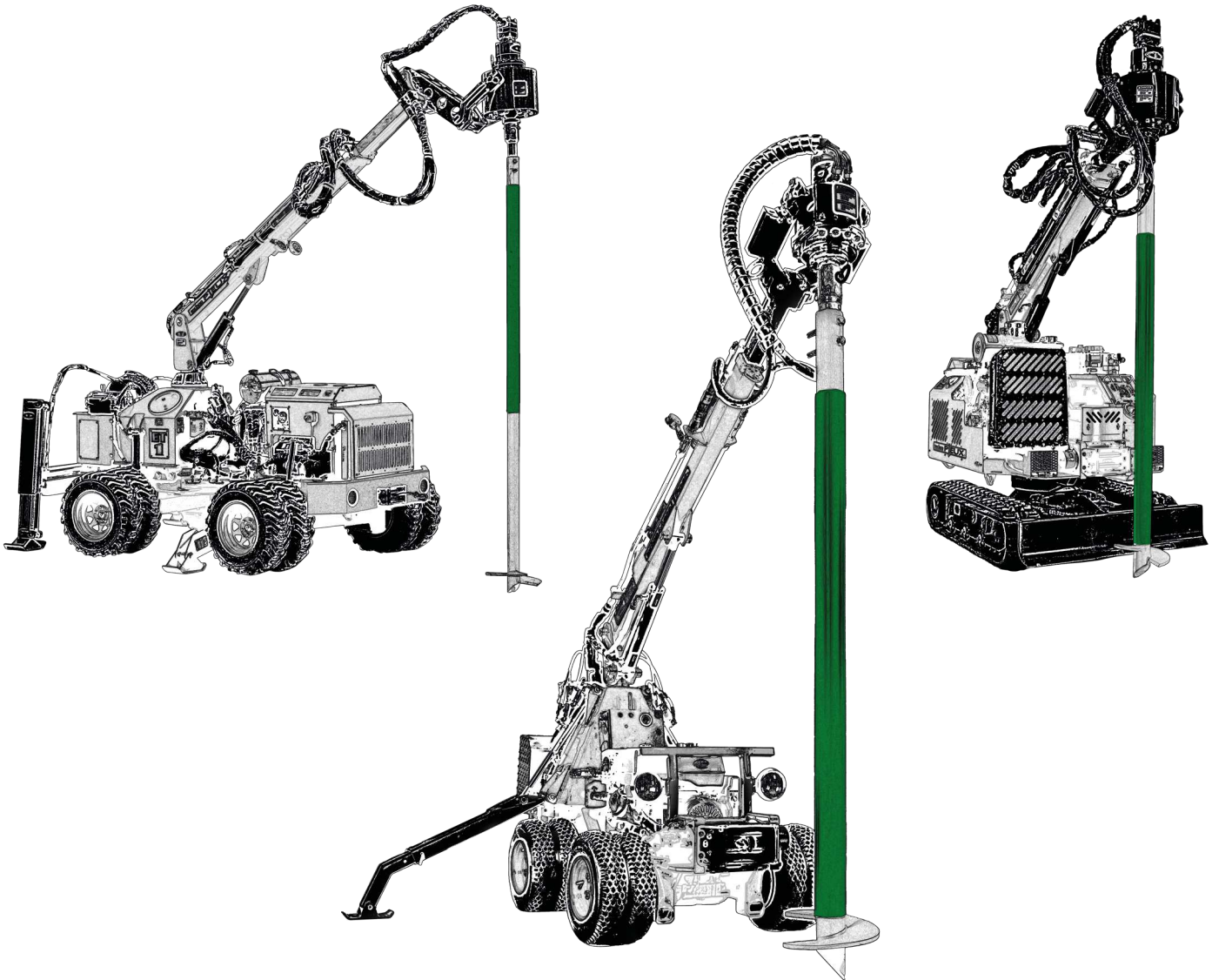
TMP's civil engineers are specialized in geotechnical and structural engineering and are here to assist and offer you personalized service – from small residential projects to large-scale industrial installations. Whenever you specify a helical pile foundation project, our engineers will determine the 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 helical piles 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.

It is recommended to share site specific information with a Techno Metal Post's engineer or the project's engineer. Site specific engineering may change 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 shaft (3.5" O.D.), in three helices size (8", 10", and 12"). The report confirms the compliance with 2015, 2012, 2009, and 2006 International Building Code (IBC). Since 2013, the Evaluation Report has been revised twice. Now the ESR-3418 covers double and triple helices, longer shafts (10'6" and 14'), as well as HD steel. 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

As of 2018, TMP is the first company in the world to receive the International Association of Plumbing and Mechanical Officers (IAPMO) ER-481 approval for its helical pile models P1 (1-7/8" O.D.), P2 (2-3/8" O.D.), and P3 (3.5" O.D.). This approval means our product is **compliant with the International Residential Code (IRC Code)** 2015, 2012, and 2009. This Evaluation Report is in accordance with IAPMO-UES Evaluation Criteria for Helical Foundations for use under the IRC, EC-027.



**International:** TMP has also been assessed and approved by **National Quality Assurance, U.S.A.**, against the provisions of: **ISO 9001**.



**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	3,350 to 4,450	250	1,336 <sup>8</sup>	785
<b>P2</b> (2.4")	<b>Medium Residential and Light Commercial</b> (deck, carport, sunroom, single story residential addition, etc.)	11,200	5,600 to 7,450	550	2,242 <sup>8</sup>	1,360
<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	15,000 to 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.)	36,000 to 45,000	18,000 to 30,000	1,500	11,000	6,371
<b>P3-HD<sup>6</sup></b> (3.5")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (new construction, underpinning, tie-back, etc.)	38,000 to 45,000	19,000 to 30,000	1,400	11,000	6,428
<b>P4-HD<sup>6</sup></b> (4")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (new construction, retaining wall, tie-back, etc.)	44,000 to 50,000	22,000 to 33,000	1,500	14,500	8,944
<b>P5<sup>6</sup></b> (5.6")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (cottage, sign, light post, new construction, boardwalk, solar panel, bollard, retaining wall, etc.)	30,000 to 50,000	15,000 to 33,000	2,750	14,500 <sup>9</sup>	14,713
<b>P6<sup>6</sup></b> (6.6")	<b>Heavy Residential, Light to Heavy Commercial and Industrial</b> (sign, light post, new construction, solar panel, bollard, retaining wall, etc.)	30,000 to 50,000	15,000 to 33,000	3,700	14,500 <sup>9</sup>	23,142

- The maximum compressive bearing capacity (allowable load) includes a safety factor of 2.
- The maximum bearing capacity (allowable load) is determined by the maximum torque applied by the installation equipment.
- When the helical foundation is laterally unsupported (soil very loose / soft, liquefiable soils, water current and wind), the structural strength of the helical foundation must be approved by TMP Engineering Department.
- 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.
- 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'. Contact TMP Engineering Department for other conditions.
- TMP Model P4, P3-HD, P4-HD, P5, and P6 are subject to site-specific engineering. TMP Engineering Department approval is required to use the upper capacity values shown in the table.
- Allowable bending resistance is based on calculations assuming bare steel, 50 years corrosion per AC358 and 1.67 safety factor.
- Maximum installation torque for P1, P2, and P3 are based on IAPMO-UES Evaluation report no. 481.
- Maximum installation torque for P5 and P6 are limited to the maximum torque of the ET1 installation equipment.

**Comments:**

- Larger Techno Metal Posts can be used for applications requiring a lateral or bending resistance higher than shown in the selection table.
- For any technical questions, please contact the TMP Engineering Department.



## Shaft

Wall Thickness	0.145" (3.7 mm)
Round HSS Outside Diameter	1.9" (48.3 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

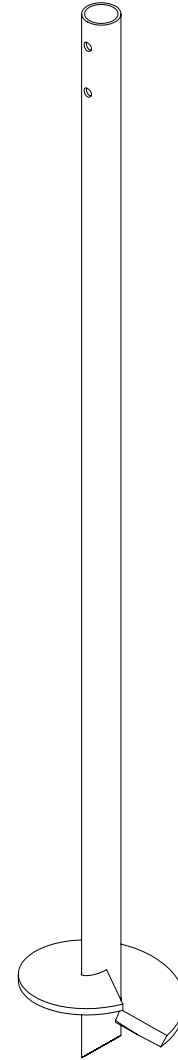
## Load Specifications

Max. Installation Torque	1,336 ft-lb (1,810 N-m)
Max. Allowable Capacity*	7 kips (30 kN)

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

## Technical Specifications

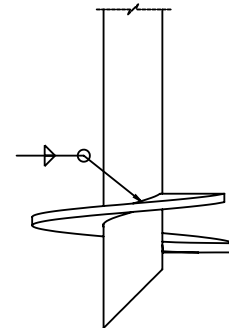
Commonly Used Structure	Light Residential
Code Evaluation	Listed per IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC308
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic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

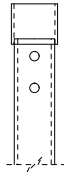


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 2.125" (± 54.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 0.9 lb (± 0.41 kg)
Material	HDPE
Color	Green



## Outside Couplings



	<b>Regular</b>
Assembly	Welded
Wall Thickness	0.154" (4 mm)
Round HSS Outside Diameter	2.375" (60.3 mm)
Standard Steel	ASTM A500 Grade C
	Fy=51 ksi min (350 MPa)
Length*	1.25" (31.8 mm)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36

## Shaft

Wall Thickness	0.154" (3.9 mm)
Round HSS Outside Diameter	2.4" (60.3 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

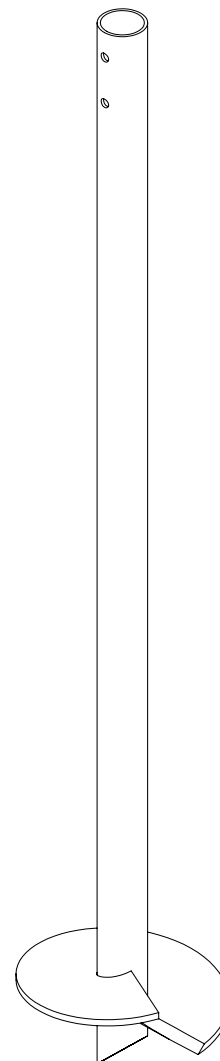
## Load Specifications

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

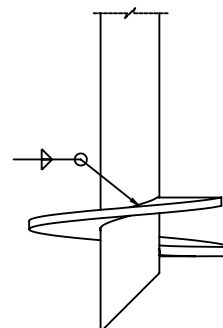
Commonly Used Structure	Medium Residential Light Commercial
Code Evaluation	Listed per IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion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



## Helix

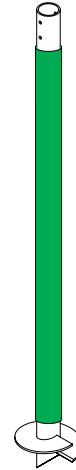
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.375" (9.5 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	6" (152 mm) to 16" (406 mm)

\* Other sizes available upon request.

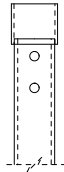


## Sleeve (Available)

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	± 0.7 lb (± 0.32 kg)
Material	HDPE
Color	Green



## Outside Couplings



### Regular

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)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Shaft

Wall Thickness	0.216" (5.5 mm)
Round HSS Outside Diameter	3.5" (88.9 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

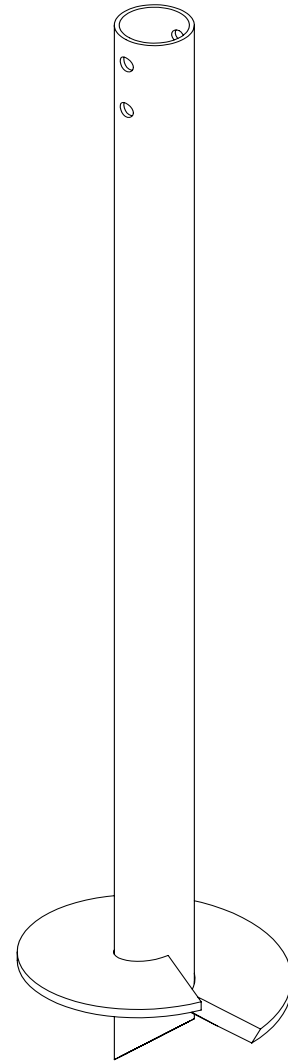
## Load Specifications

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

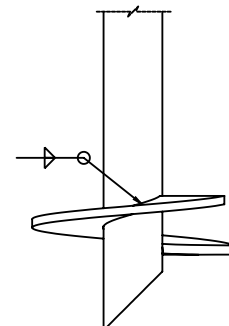
Commonly Used Structure	Heavy Residential Light to Medium Commercial Industrial
Code Evaluation	Listed per ICC-ES (ESR-3418) / IAPMO-UES (ER-481)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance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



## Helix

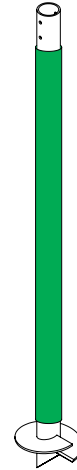
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

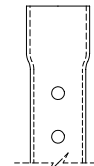
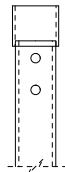


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 3.75" (± 95.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.5 lb (± 0.68 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced	Expanded
Assembly	Welded	Welded	-
Wall Thickness	0.226" (6 mm)	0.226" (6 mm)	0.188" (4.8 mm)
Round HSS Outside Diameter	4" (102 mm)	4" (102 mm)	4" (102 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)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Foundation Repair Brackets

Concrete Wall	Page 42
Concrete Masonry Unit (CMU) Wall	Pages 43-45
Interior Concrete Wall	Page 46

## Shaft

Wall Thickness	0.300" (7.6 mm)
Round HSS Outside Diameter	3.5" (88.9 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

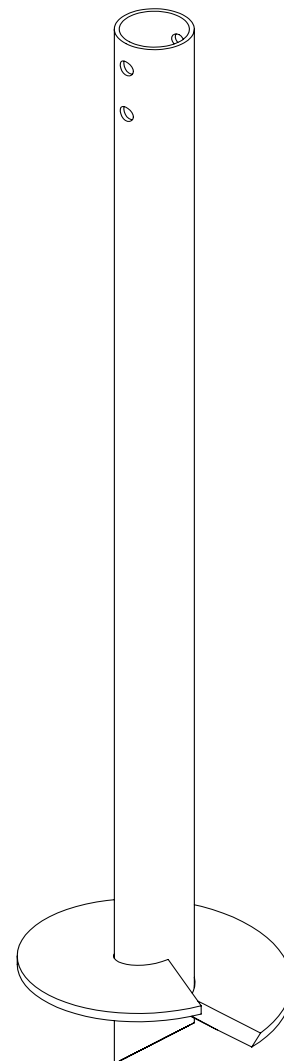
## Load Specifications

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

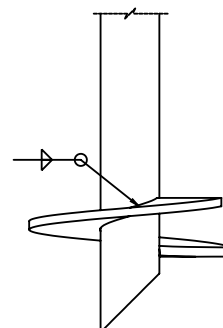
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Code Evaluation	Listed per ICC-ES (ESR-3418) / IAPMO-UES (ER-481)
	Standard Steel
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion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



## Helix

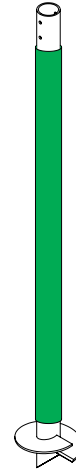
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
	Coating
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

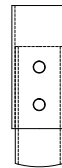
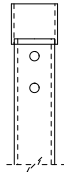


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 3.75" (± 95.2 mm)
Length	± 66" (± 1.67 m)
Weight	± 1.5 lb (± 0.68 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced
Assembly	Welded	Welded
Wall Thickness	0.226" (6 mm)	0.226" (6 mm)
Round HSS Outside Diameter	4" (102 mm)	4" (102 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)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Foundation Repair Brackets

Concrete Wall	Page 42
Concrete Masonry Unit (CMU) Wall	Pages 43-45
Interior Concrete Wall	Page 46



## Shaft

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

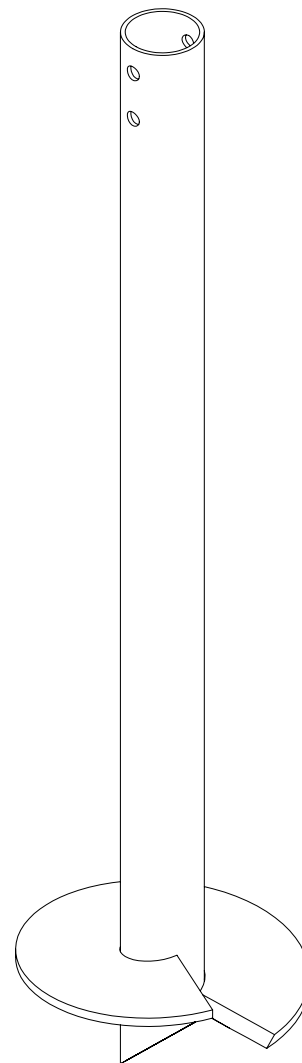
## Load Specifications

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

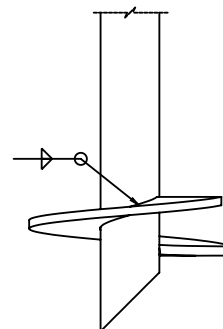
Commonly Used Structure	Heavy Residential
	Light to Medium Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection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



## Helix

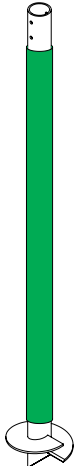
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

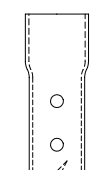
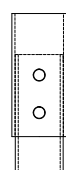
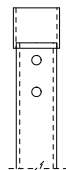


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 4.25" (± 108 mm)
Length	± 66" (± 1.67 m)
Weight	± 2.4 lb (± 1.09 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced	Expanded
Assembly	Welded	Welded	-
Wall Thickness	0.237" (6 mm)	0.237" (6 mm)	0.201" (5.1 mm)
Round HSS Outside Diameter	4.5" (114 mm)	4.5" (114 mm)	4.5" (114 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)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Shaft

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

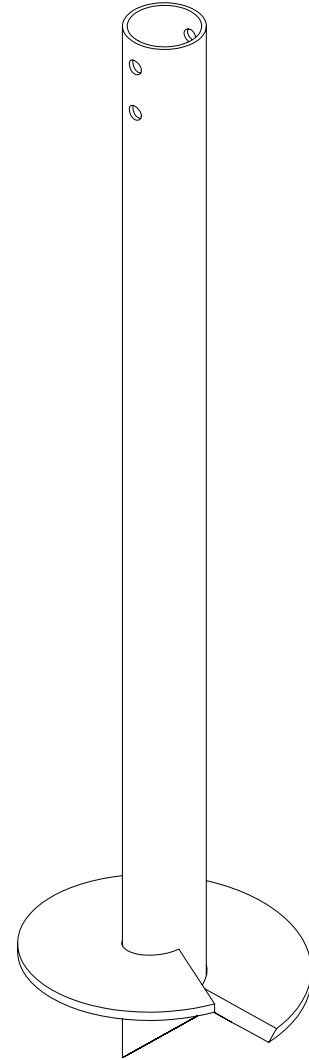
## Load Specifications

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

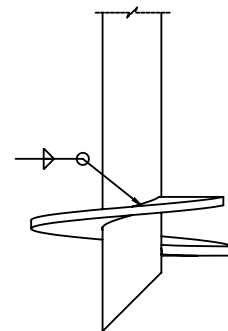
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection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



## Helix

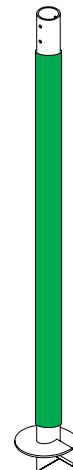
Pitch	3" (76.2 mm) / 5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	8" (203 mm) to 24" (610 mm)

\* Other sizes available upon request.

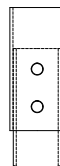
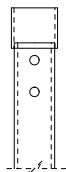


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 4.25" (± 108 mm)
Length	± 66" (± 1.67 m)
Weight	± 2.4 lb (± 1.09 kg)
Material	HDPE
Color	Green



## Outside Couplings



	Regular	Reinforced
Assembly	Welded	Welded
Wall Thickness	0.237" (6 mm)	0.237" (6 mm)
Round HSS Outside Diameter	4.5" (114 mm)	4.5" (114 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)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Shaft

Wall Thickness	0.258" (6.6 mm)
Round HSS Outside Diameter	5.6" (141.3 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

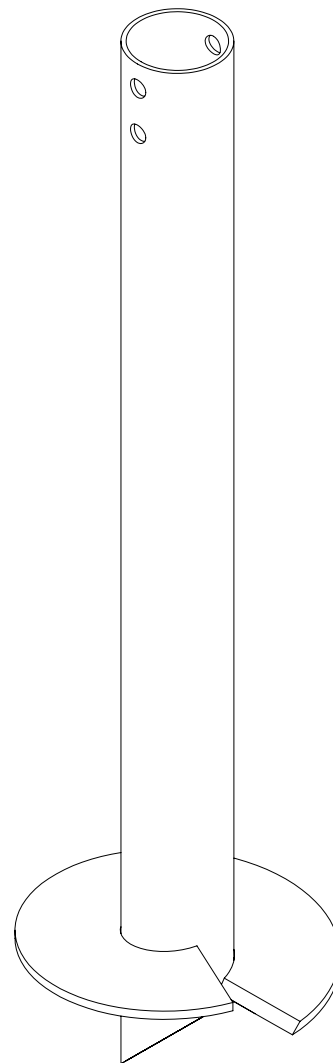
## Load Specifications

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

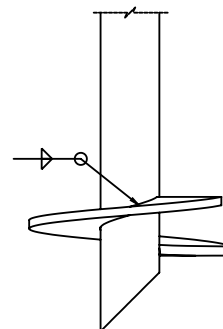
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection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



## Helix

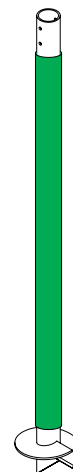
Pitch	5" (127 mm)
Thickness	0.5" (12.7 mm)
Standard Steel	CSA G40.21-44W Fy=44 ksi min (300 MPa)
Coating	Galvanized or Black Steel
Multiple Welded Helix	Available
Helix Size*	12" (305 mm) to 24" (610 mm)

\* Other sizes available upon request.

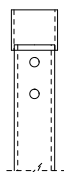


## Sleeve (Available)

Function Utility	Protection against soil movements
Wall Thickness	1/16" (1.6 mm)
Round HSS Outside Diameter	± 5.75" (± 146 mm)
Length	± 66" (± 1.67 m)
Weight	± 2.3 lb (± 1.04 kg)
Material	HDPE
Color	Green



## Outside Couplings



### Regular

Assembly	Welded
Wall Thickness	0.188" (5 mm)
Round HSS Outside Diameter	6" (152 mm)
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Length*	3" (76.2 mm)

\* Length of outside coupling welded on-site.

## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40

## Shaft

Wall Thickness	0.280" (7.1 mm)
Round HSS Outside Diameter	6.6" (168.3 mm)
Available Standard Lengths	7'-0" (2.1 m) / 10'-6" (3.2 m)

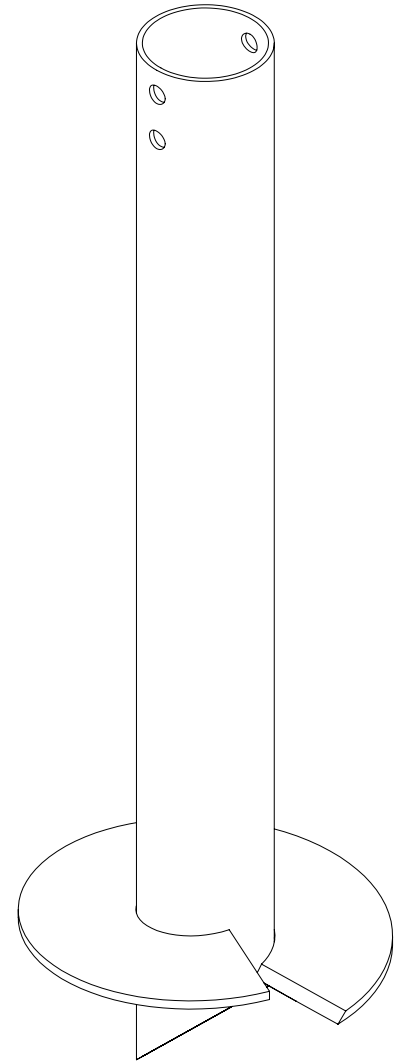
## Load Specifications

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

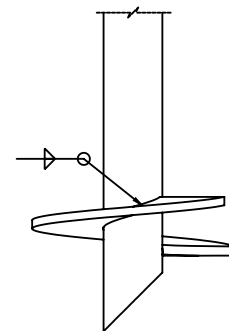
Commonly Used Structure	Heavy Residential
	Light to Heavy Commercial
	Industrial
Standard Steel	ASTM A500 Grade C Fy=51 ksi min (350 MPa)
Black Steel Design Life	50 years per AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123/A123M
Additional Corrosion Protection	Cathodic Protection 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 (not available)

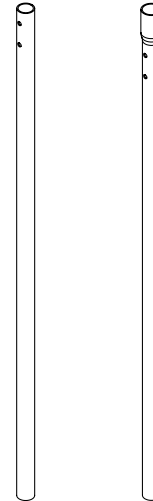
## Pile Caps

Wood Structure Connectors	Pages 27-34
Steel Structure Connectors	Pages 29, 35-36
Concrete Construction Connectors	Pages 29, 37-40



## 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

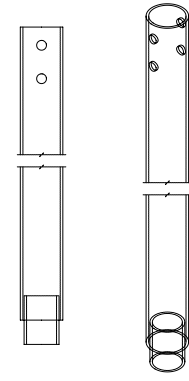
Extensions	Wall Thickness	Outside Diameter	Available Standard Lengths		Max. Installation Torque
<b>R1</b>	0.145" (3.7 mm)	1.9" (48.3 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	1,336 ft-lb (1,810 N-m)
<b>R2</b>	0.154" (3.9 mm)	2.4" (60.3 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	2,242 ft-lb (3,037 N-m)
<b>R3</b>	0.216" (5.5 mm)	3.5" (88.9 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	8,509 ft-lb (11,527 N-m)
<b>R3-HD</b>	0.300" (7.6 mm)	3.5" (88.9 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	11,000 ft-lb (14,902 N-m)
<b>R4</b>	0.226" (6 mm)	4" (101.6 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	11,000 ft-lb (14,902 N-m)
<b>R4-HD</b>	0.313" (8 mm)	4" (101.6 mm)	8'-0" (2.4 m)	12'-0" (3.7 m)	14,500 ft-lb (19,643 N-m)
<b>R5</b>	0.258" (6.6 mm)	5.6" (141.3 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	14,500 ft-lb (19,700 N-m)
<b>R6</b>	0.280" (7.1 mm)	6.6" (168.3 mm)	7'-0" (2.1 m)	10'-6" (3.2 m)	14,500 ft-lb (19,700 N-m)

# EXTENSIONS Welded Inside Coupling UI

Extensions

## 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



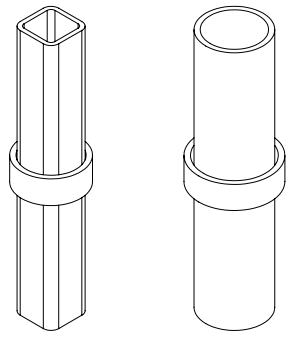
## Dimensions

For	Assembly	Outside Diameter	Wall Thickness	Length
<b>R1</b>	Welded	1.5" (38.1 mm)	0.125" (31.2 mm)	4" (101.6 mm)
<b>R2</b>	Welded	1.9" (48.3 mm)	0.145" (3.7 mm)	4" (101.6 mm)
<b>R3</b>	Welded	2.875" (73 mm)	0.203" (5.2 mm)	4" (101.6 mm)
<b>R4</b>	Welded	3.5" (88.9 mm)	0.216" (5.2 mm)	4" (101.6 mm)
<b>R5</b>	Welded	5" (127 mm)	0.25" (6.4 mm)	4" (101.6 mm)
<b>R6</b>	Welded	6" (152.4 mm)	0.1875" (4.8 mm)	3" (76.2 mm)

# Non-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	Tubing			Ring Stopper		
		Outside Diameter	Wall Thickness	Length	Outside Diameter	Wall Thickness	Length
<b>R1</b> (square tube)	Not Welded	1.25" (31.8 mm)	0.125" (31.2 mm)	8" (203.2 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)	0.75" (19.0 mm)
<b>R2</b> (round tube)	Not Welded	1.9" (48.3 mm)	0.145" (3.7 mm)	8" (203.2 mm)	2,375" (60.3 mm)	0.154" (3.9 mm)	0.75" (19.0 mm)

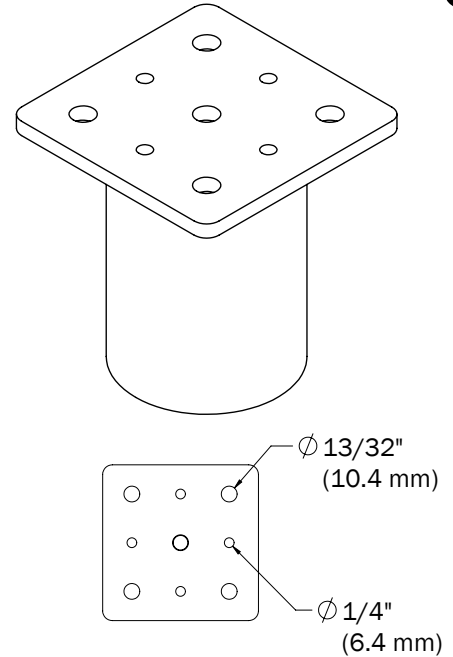
# WOOD STRUCTURE CONNECTORS

## Flat Plate - Fixed CF

### 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 Caps

Pile Model	Plate Dimensions			Adapter Dimensions		
	Length	Width	Thickness	Height	Out. Diameter	Thickness
	A	B	C	D	E	F
P1	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	1.5" (38 mm)	0.14" (3.6 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			
P2	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			
P3	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			

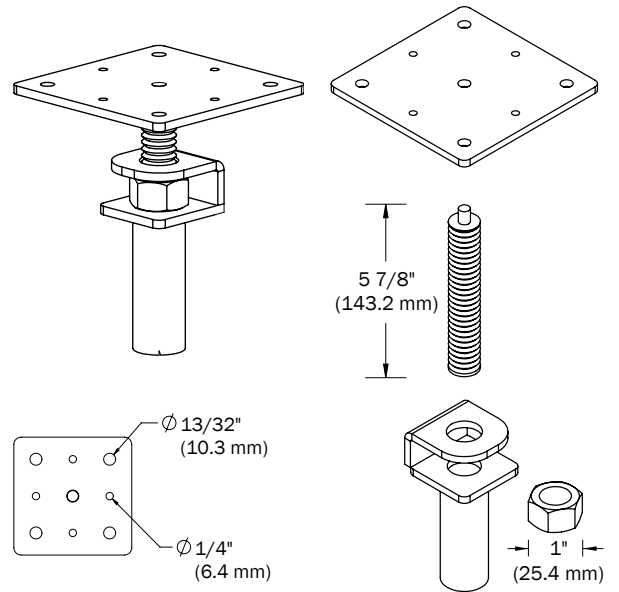
# WOOD STRUCTURE CONNECTORS

## Flat Plate - Adjustable

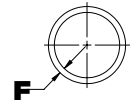
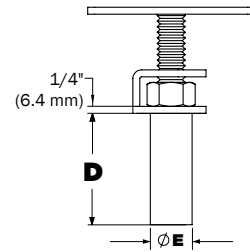
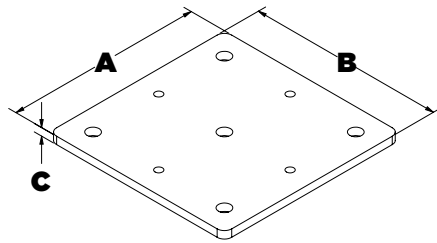
### CAS

#### 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 AC358
Coating	Galvanized or Black Steel
Galvanization Compliance	ASTM A123



Pile Caps



Pile Model	Plate Dimensions			Adapter Dimensions		
	Length	Width	Thickness	Height	Out. Diameter	Thickness
	A	B	C	D	E	F
P1	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	1.5" (38 mm)	0.14" (3.6 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			
P2	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			
P3	4" (102 mm)	4" (102 mm)	0.25" (6.4 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
	5" (127 mm)	5" (127 mm)	0.25" (6.4 mm)			

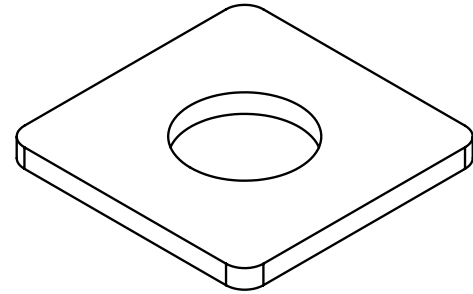
# ALL STRUCTURE CONNECTORS

## 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 Model	Plate Dimensions			
	Length	Width	Thickness	Hole size
	A	B	C	D
P2	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)	
P3	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)	
P4	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)	
P5	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	4.125" (104.8 mm)
P6	8" (203 mm)	8" (203 mm)	0.75" (19 mm)	4.125" (104.8 mm)

# WOOD STRUCTURE CONNECTORS

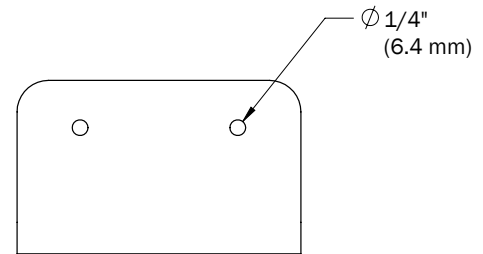
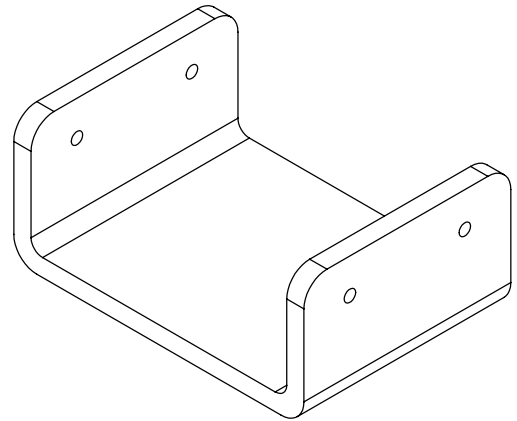
## U Plate - ICC Bracket for Wood Beams

### PU, 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 AC308
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	Plate Dimensions				Adapter Dimensions (if bolted to TMP)		
	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)
<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)

# WOOD STRUCTURE CONNECTORS

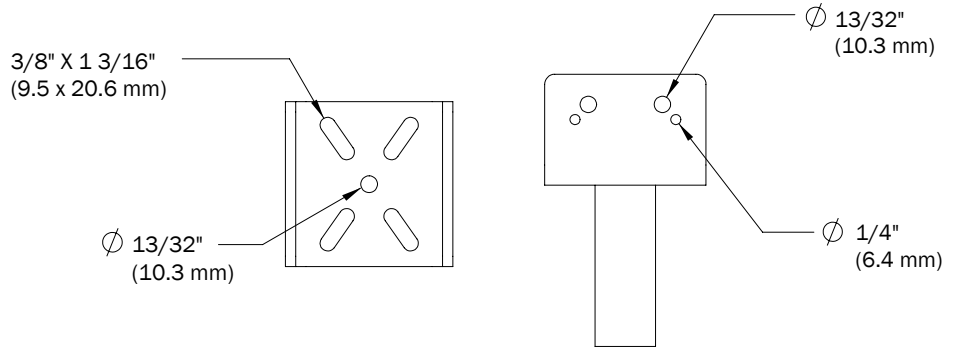
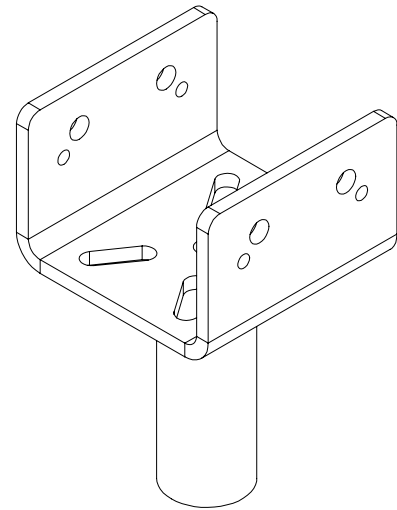
## U Plate - Fixed

### UF

### 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 Caps

Pile Model	Plate Dimensions				Adapter Dimensions		
	Length	Width (inside)	Thickness	Height	Height	Out. Diameter	Thickness
	A	B	C	D	E	F	G
<b>P1</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	1.5" (38 mm)	0.14" (3.6 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			
<b>P2</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			
<b>P3</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			

# WOOD STRUCTURE CONNECTORS

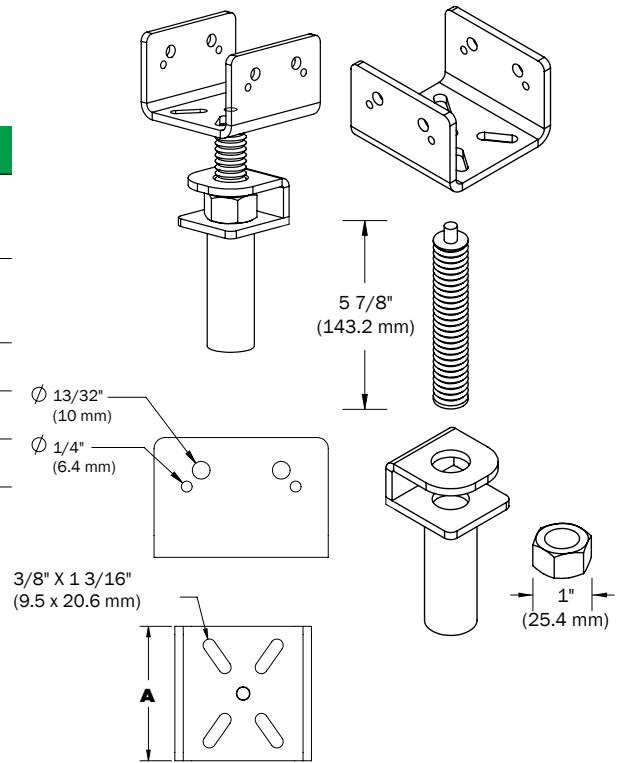
## U Plate - Adjustable

### UAS

#### 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 Caps

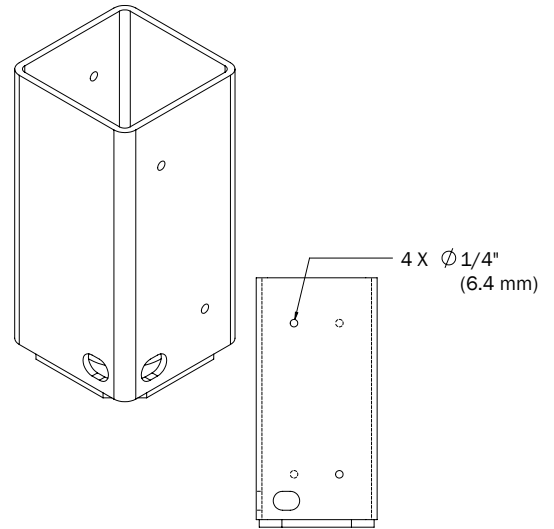
Plate Number for P3	Plate Dimensions				Adapter Dimensions		
	Length	Width (inside)	Thickness	Height	Height	Out. Diameter	Thickness
	A	B	C	D	E	F	G
<b>P1</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	1.5" (38 mm)	0.14" (3.6 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			
<b>P2</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			
<b>P3</b>	4" (102 mm)	3.5625" (90.5 mm)	0.25" (6.4 mm)	2.75" (69.9 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
	4" (102 mm)	5.5625" (141.3 mm)	0.25" (6.4 mm)	4" (102 mm)			



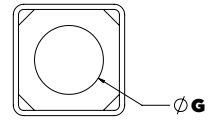
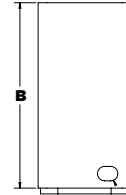
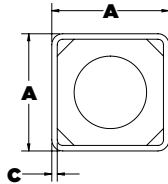
### Technical Specifications

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)					
		Length / Width	Thickness	Height	Hole Size		
		A	C	B			
P2	Lumber	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	4.09" (104.0 mm)				0.25" (6.4 mm)	8" (203 mm)
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
P3	Lumber	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	4.09" (104.0 mm)				0.25" (6.4 mm)	8" (203 mm)
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
P4	Lumber	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	4.25" (108 mm)		
		7.625" (193.7 mm)					
	Rough	6.09" (154.7 mm)				0.25" (6.4 mm)	8" (203 mm)
		8.09" (205.5 mm)					
P5	Lumber	5.625" (142.9 mm)	0.1875" (4.8 mm)	8" (203 mm)	5.6875" (144.5 mm)		
		7.625" (193.7 mm)					
	Rough	6.09" (154.7 mm)				0.25" (6.4 mm)	8" (203 mm)
		8.09" (205.5 mm)					

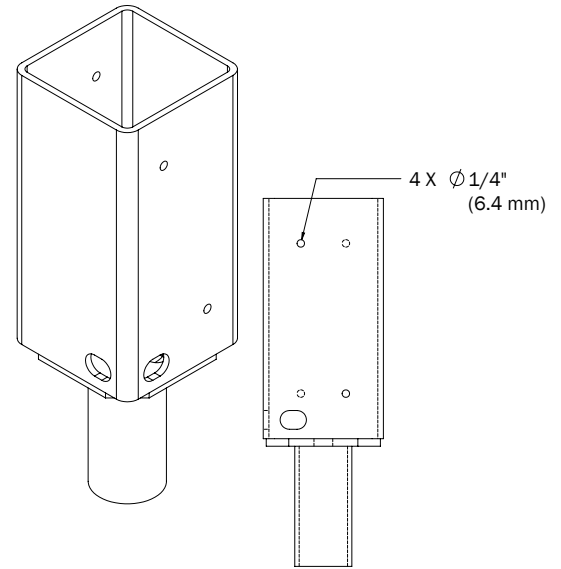
# WOOD STRUCTURE CONNECTORS

## Box - Fixed SPA

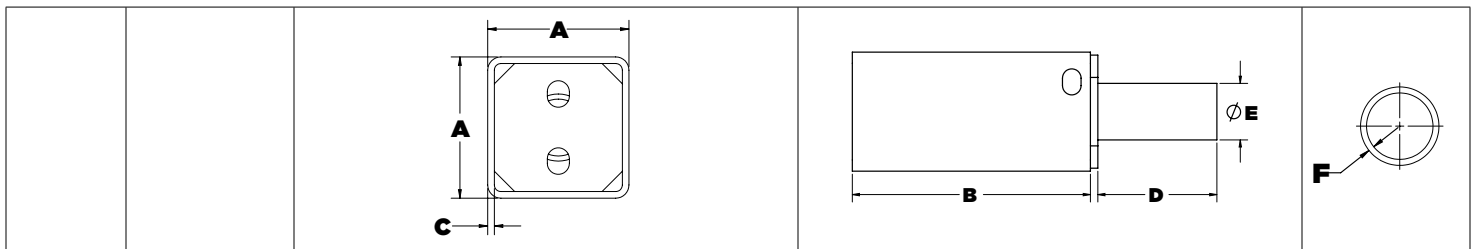
### Technical Specifications

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 Caps



Pile Model	Type of Wood	Box Dimensions (interior)			Adapter Dimensions		
		Length / Width	Thickness	Height	Height	O.D.	Thickness
		A	C	B	D	E	F
P2	Lumber	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	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)			
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
P3	Lumber	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	4.09" (104.0 mm)	0.25" (6.4 mm)	8" (203 mm)			
		6.09" (154.7 mm)					
		8.09" (205.5 mm)					
P4	Lumber	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	6.09" (154.7 mm)	0.25" (6.4 mm)	8" (203 mm)			
		8.09" (205.5 mm)					
P5	Lumber	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	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)					

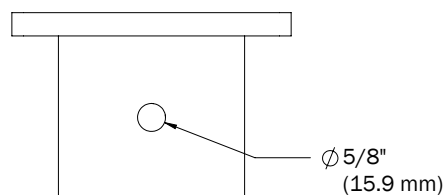
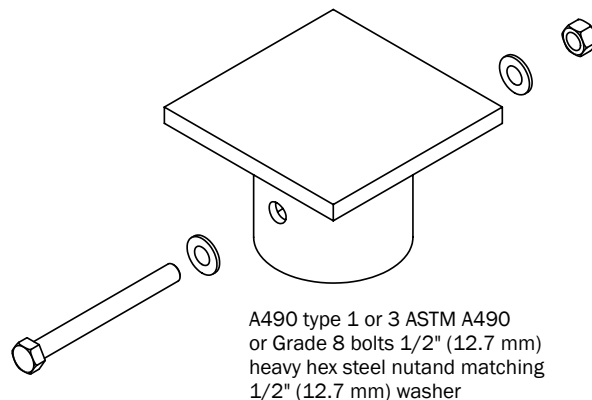
# STEEL STRUCTURE CONNECTORS

## 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	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="http://technometalpost.com/icc">technometalpost.com/icc</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)				

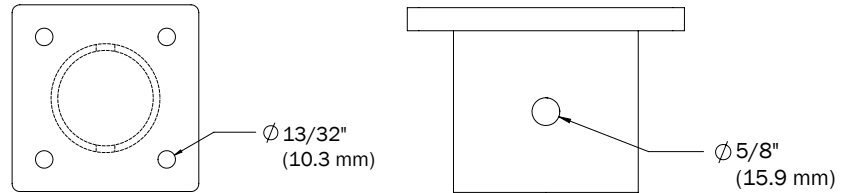
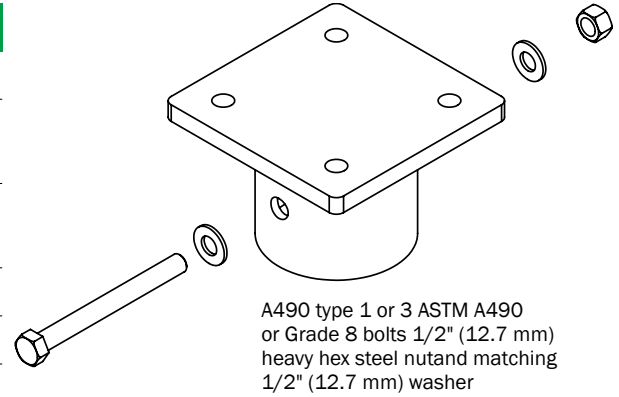
# STEEL STRUCTURE CONNECTORS

## 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	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="http://technometalpost.com/icc">technometalpost.com/icc</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)				

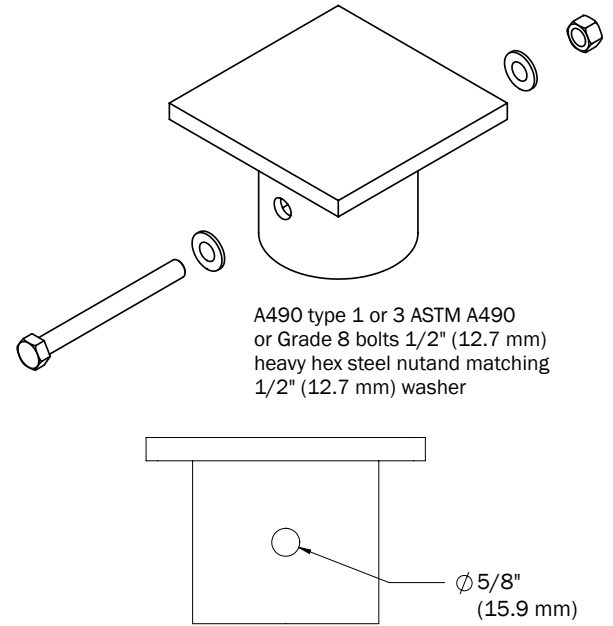
# CONCRETE STRUCTURE CONNECTORS

## 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

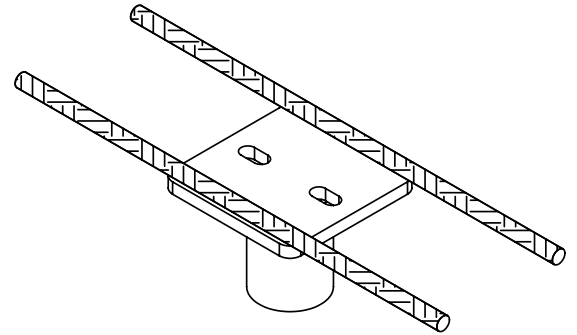
Pile Model	Plate Dimensions			Adapter Dimensions			Max. Allowable Capacity
	Length	Width	Thickness	Height	Out. Diameter	Thickness	
	A	B	C	D	E	F	
P3	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)	See report (ESR-3418) <a href="http://technometalpost.com/icc">technometalpost.com/icc</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

### 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

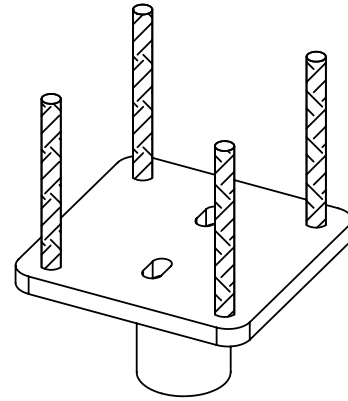


Pile Caps

Pile Model	Plate Dimensions			Adapter Dimensions			Rebar (#5)		
	Length	Width	Thickness	Height	O.D.	Thickness	Length	Number	O.D.
	A	B	C	D	E	F	G	H	I
<b>P2</b>	5" (127 mm)	5" (127 mm)	0.375" (9.5 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)	20" (508 mm)	2 or 4	0.625" (15.9 mm)
<b>P3</b>	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)	20" (508 mm)	2 or 4	0.625" (15.9 mm)
<b>P4</b>	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)	4" (102 mm)	3.5" (88.9 mm)	0.215" (5.5 mm)	20" (508 mm)	2 or 4	0.625" (15.9 mm)

### 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



Pile Model	Plate Dimensions			Adapter Dimensions			Rebar (#5)		
	Length	Width	Thickness	Height	O.D.	Thickness	Length	Number	O.D.
	A	B	C	D	E	F	G	H	I
<b>P2</b>	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)	4" (102 mm)	1.9" (48.3 mm)	0.145" (3.7 mm)	Variable	Variable	0.625" (15.9 mm)
<b>P3</b>	6" (152.4 mm)	6" (152.4 mm)	0.5" (12.7 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)	Variable	Variable	0.625" (15.9 mm)

# CONCRETE STRUCTURE CONNECTORS

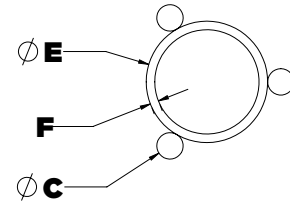
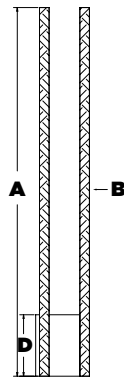
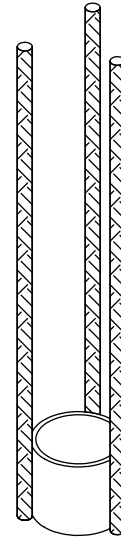
## Coupling with Vertical Rebar

### RC

#### Technical Specifications

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

Other sizes available upon request.

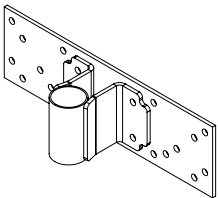
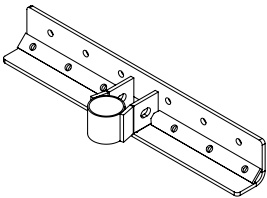
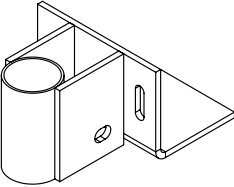
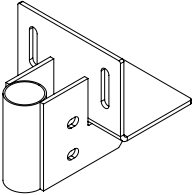
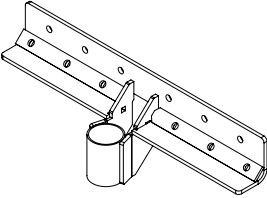


Pile Model	Rebar (#5)			Adapter Dimensions		
	Length	Number	Out. Diameter	Height	Out. Diameter	Thickness
	A	B	C	D	E	F
<b>P2</b>	24" (610 mm)	2	0.625" (15.9 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
<b>P2</b>	24" (610 mm)	3	0.625" (15.9 mm)	4" (102 mm)	2.875" (73.0 mm)	0.203" (5.2 mm)
<b>P3</b>	24" (610 mm)	2	0.625" (15.9 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)
<b>P3</b>	24" (610 mm)	3	0.625" (15.9 mm)	4" (102 mm)	4" (102 mm)	0.226" (5.7 mm)



### 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

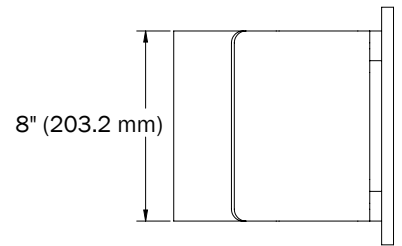
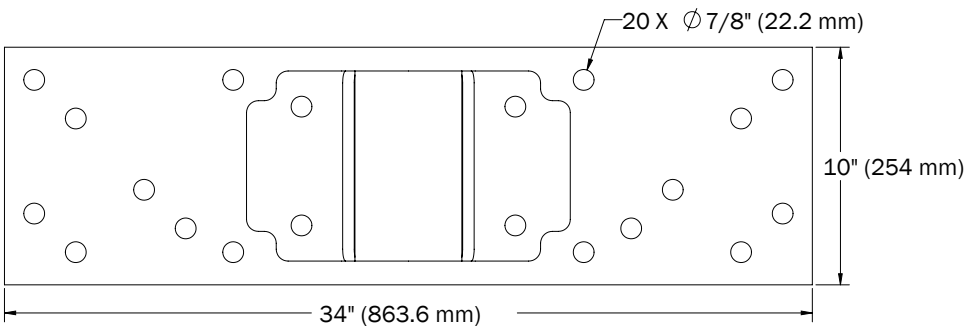
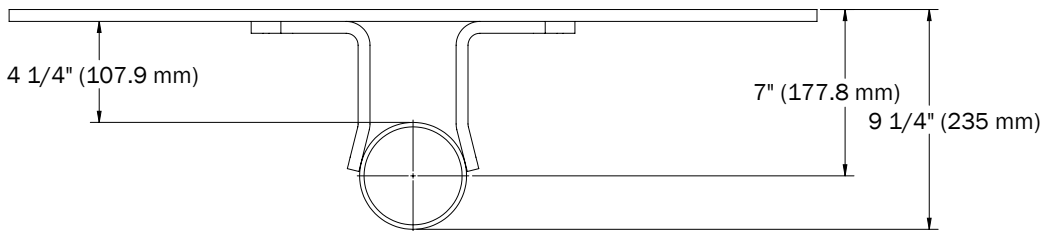
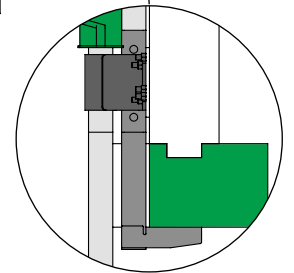
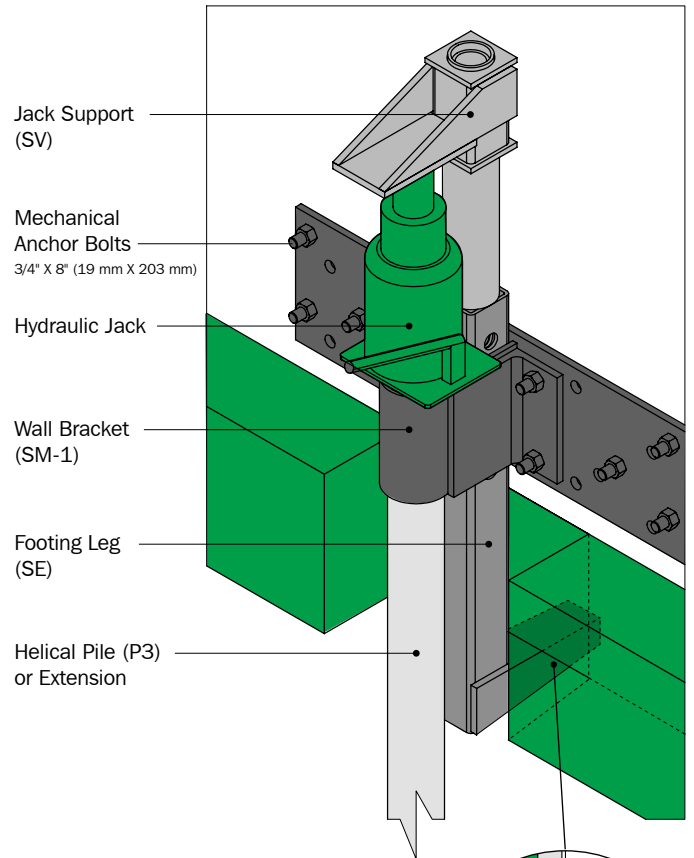
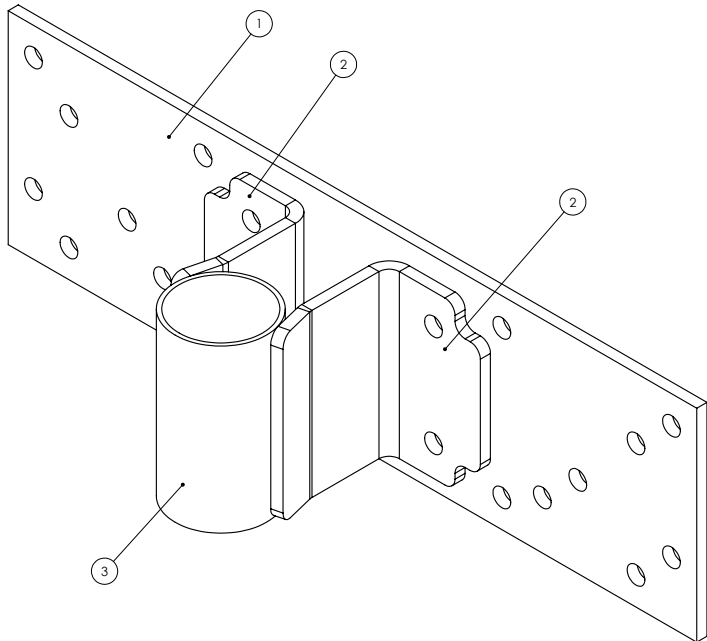
Pile Model	Bracket Model	Drawing	Dimensions			Max. Allowable Capacity
			Length	Width	Thickness	
			A	B	C	lbf
<b>P3</b>	<b>SM-1</b> Concrete Wall		See shop drawings p.42			29,500
<b>P3</b>	<b>SM-2</b> Concrete Masonry Unit (CMU) Wall #2		See shop drawings p.43			22,000
<b>P3</b>	<b>SM-3</b> Concrete Masonry Unit (CMU) Wall #3		See shop drawings p.44			16,000
<b>P3</b>	<b>SM-4</b> Concrete Masonry Unit (CMU) Wall #4		See shop drawings p.45			20,800
<b>P3</b>	<b>SM-5</b> Interior Concrete Wall		See shop drawings p.46			22,000

Foundation Repair Brackets

# FOUNDATION REPAIR BRACKETS

## Concrete Wall #1 SM-1

ITEM#	MATERIAL
1	Steel Plate CSA G40.21-44W
2	Steel Plate CSA G40.21-44W
3	HSS 4.5" Round Tubing ASTM A500C



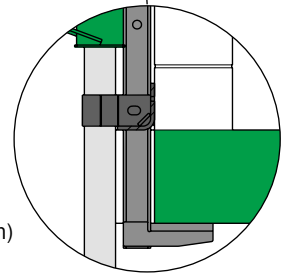
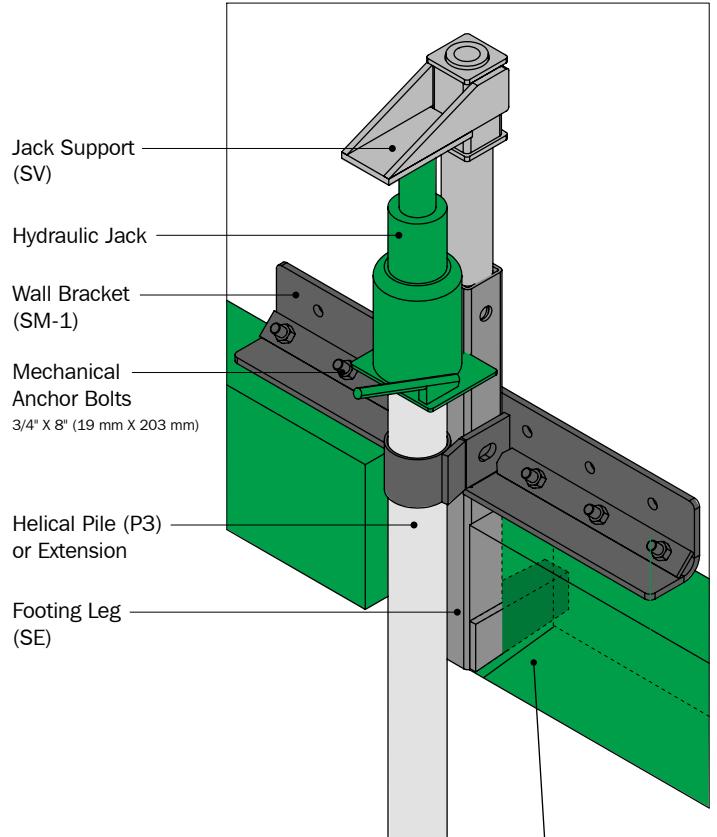
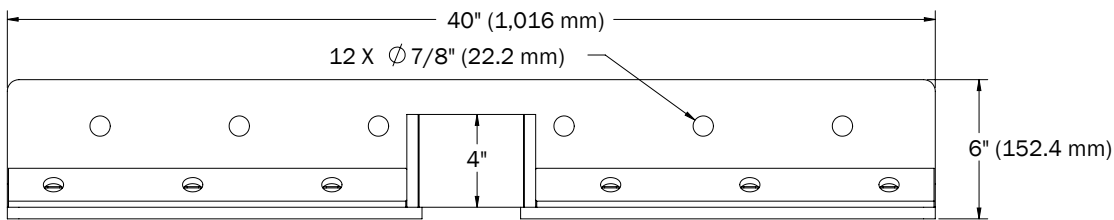
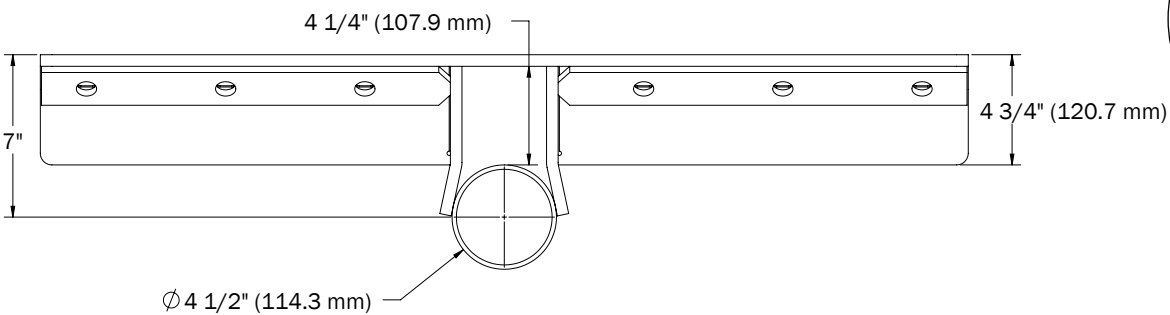
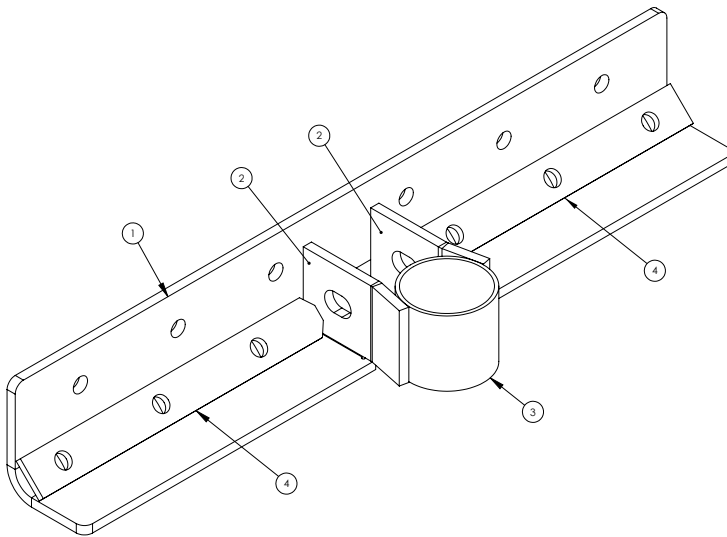
Foundation Repair Brackets

# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #2

### SM-2

ITEM#	MATERIAL
1	Steel Plate CSA G40.21-44W
2	Steel Plate CSA G40.21-44W
3	HSS 4.5" Round Tubing ASTM A500C
4	Steel Plate CSA G40.21-44W



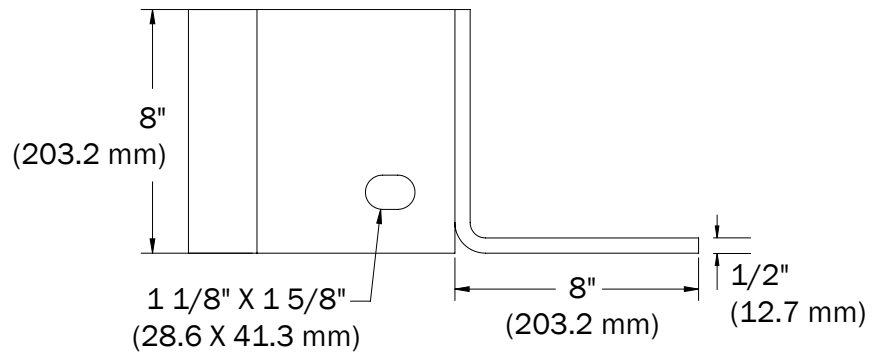
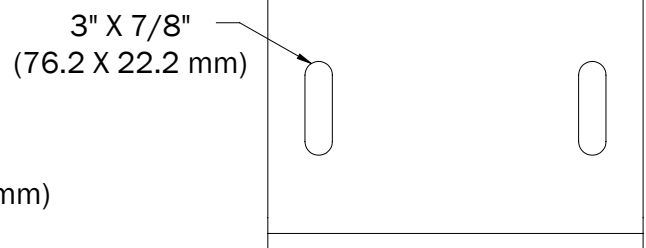
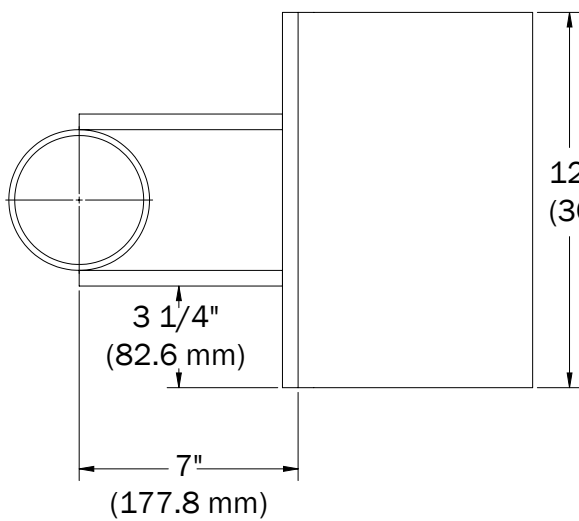
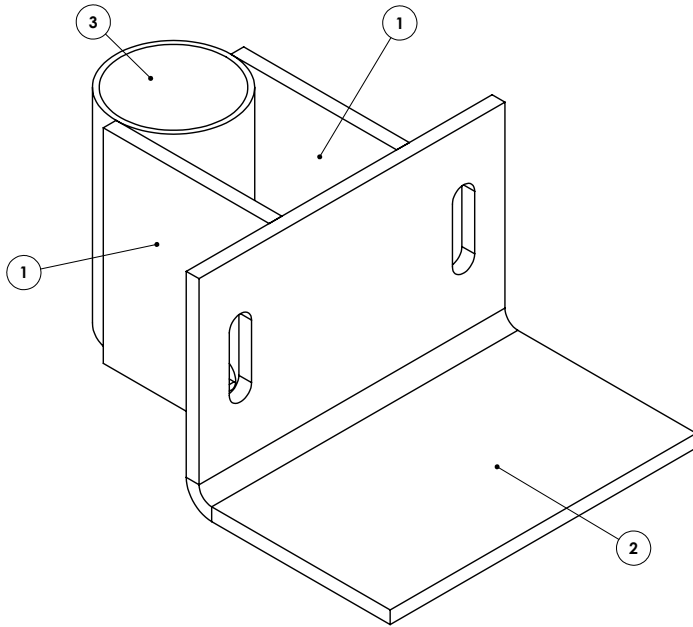
Foundation Repair Brackets

# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #3

### SM-3

ITEM#	MATERIAL
1	Steel Plate CSA G40.21-44W
2	Steel Plate CSA G40.21-44W
3	HSS 4.5" Round Tubing ASTM A500C

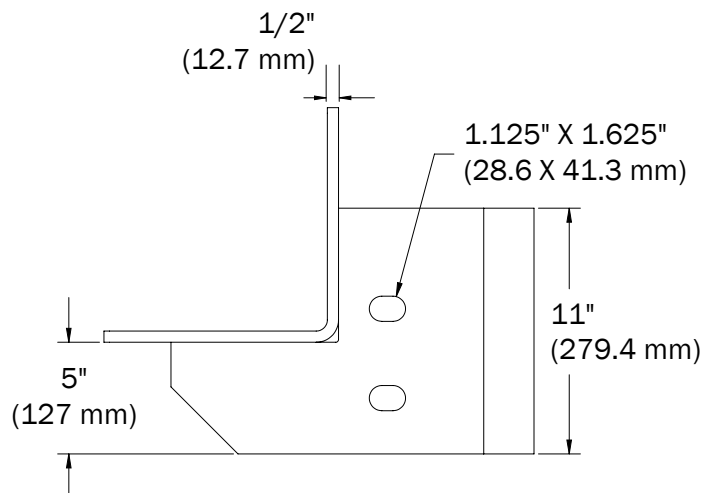
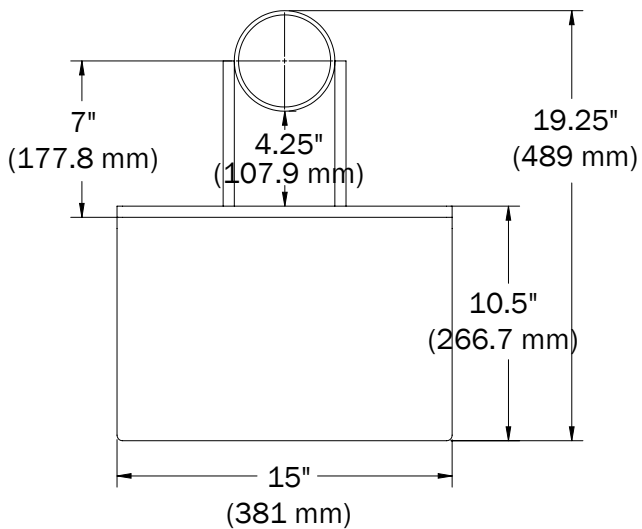
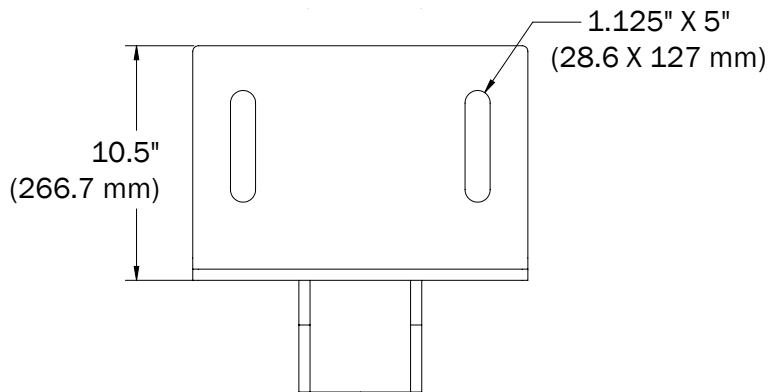
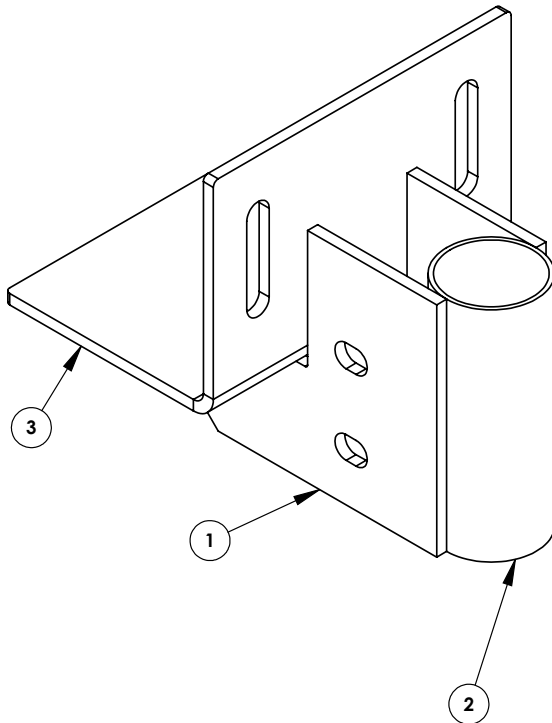


# FOUNDATION REPAIR BRACKETS

## Concrete Masonry Unit (CMU) Wall #4

### SM-4

ITEM#	MATERIAL
1	Steel Plate CSA G40.21-44W
2	HSS 4.5" Round Tubing ASTM A500C
3	Steel Plate CSA G40.21-44W

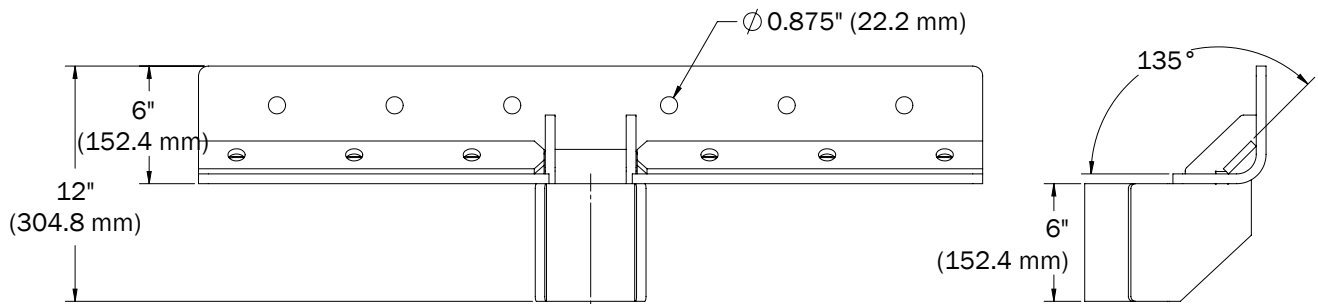
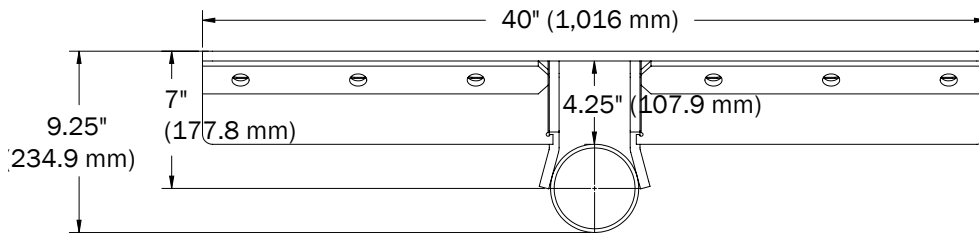
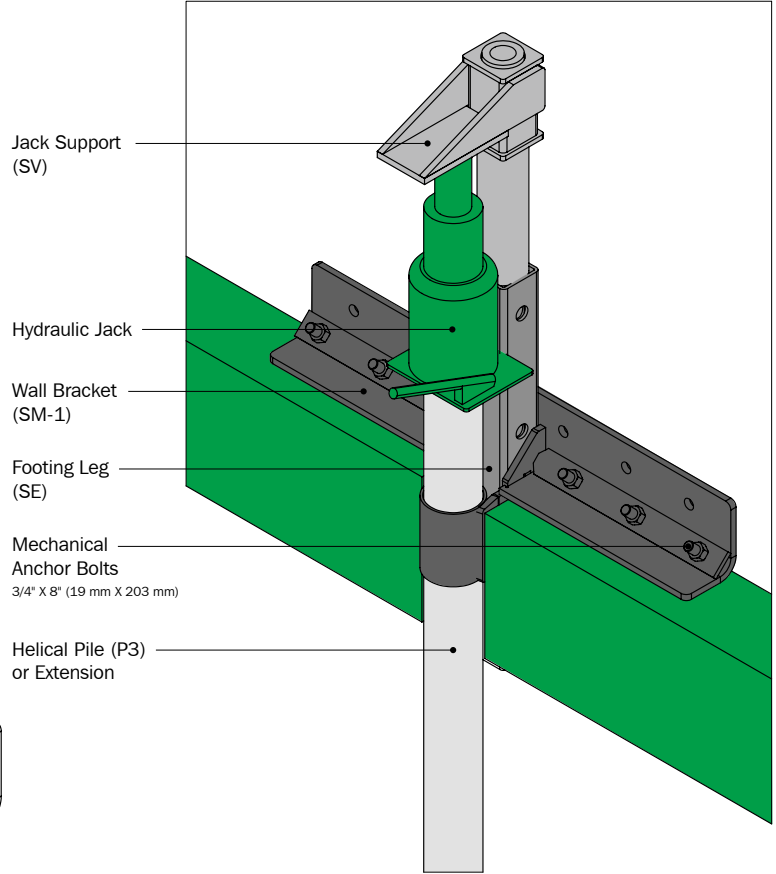
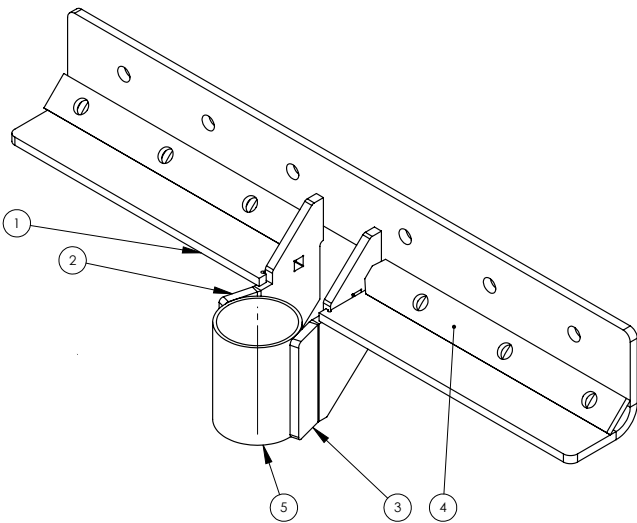


# FOUNDATION REPAIR BRACKETS

## Interior Concrete Wall #5

### SM-5

ITEM#	MATERIAL
1	Steel Plate CSA G40.21-44W
2	Steel Plate CSA G40.21-44W
3	Steel Plate CSA G40.21-44W
4	Steel Plate CSA G40.21-44W
5	HSS 4.5" Round Tubing ASTM A500C



Foundation Repair Brackets



## R2D

**Dimensions (L x W x H):**

98 ½" x 29" x 59" (2,500 mm x 760 mm x 1,500 mm)

**Weight:**

1,653 lbs (750 kg)

**Maximal height of mast:**

133 ⅞" (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:**

20 kips



## 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:**

30 kips



## 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 lbs (4,037 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

techno Metal Post™



**AN EXPERIENCED AND  
RELIABLE NETWORK OF  
MORE THAN 150 DEALERS  
THROUGHOUT THE WORLD.**

[www.technometalpost.com](http://www.technometalpost.com)