Pipe and Equipment Support Systems

The Pipe Support Systems designed by ASP are built on a patented support base and are easily installed with little to no maintenance required.

Engineering ensures safe weight displacement, vibration absorption and roof protection.

Standard pipe support systems are available for gas lines, electrical conduit, chilled water lines, condensate lines, duct work as well as A/C equipment stands.

With our in-house design team, ASP can offer customized pipe support systems to fit your application.

Green Build – Products contain post industrial and post consumer recycled content and contributes to USGBC LEED-NC v2.2 credits.

Advanced Support Products, Inc. • 281-357-1277 Phone • 281-357-0577 Fax • 800-941-5737 Toll Free
www.aspbase.com

Table of Contents

Pipe and Equipment Support Systems

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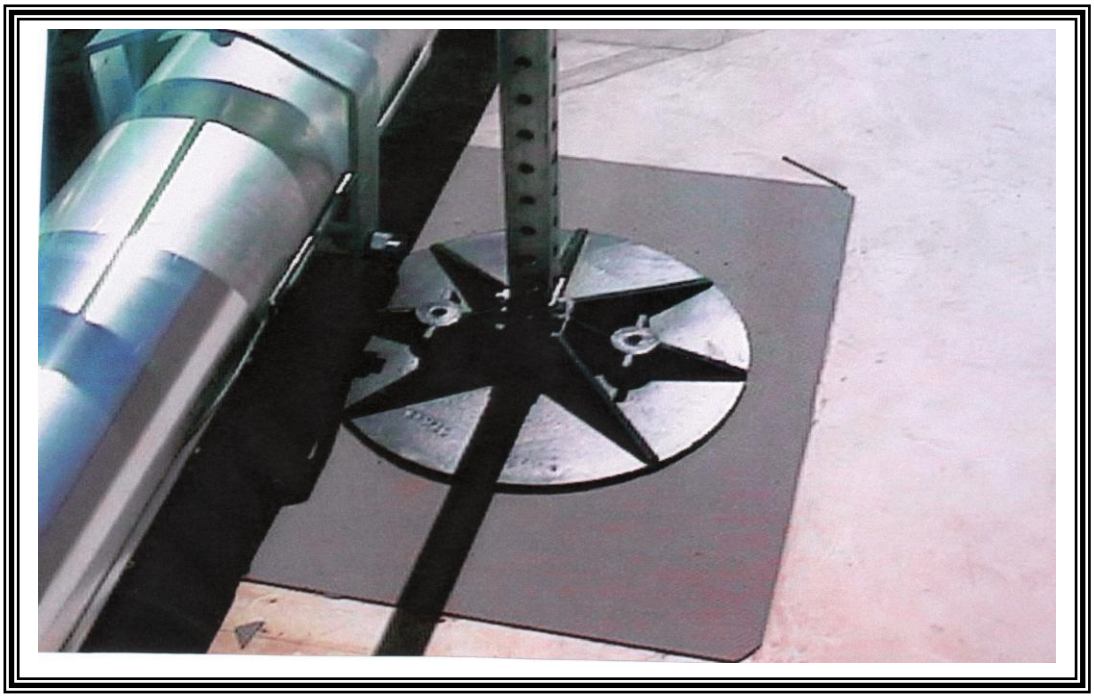
SS1000 Series – 17” Circular Weight Disbursing Base



The **SS1000 Series** Pipe & Equipment Support Systems are designed specifically for use on rooftop without adhesive, roof penetrations, flashings or damage to roofing system

The Support Systems are built using a patented 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.

The Circular Base dimensions are 3"H X 17" in diameter and are designed for weight displacement. The Circular Base has molded insert for square tubing as well as two threaded rod couplings molded in.

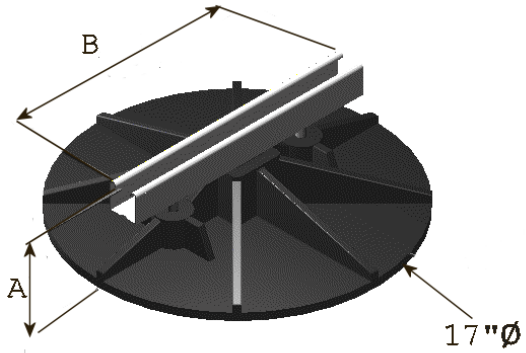
The LEED information on the Circular Base includes a minimum 40 % post-industrial recycled polypropylene with UV inhibitors.

The pipe and equipment support frames are available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

The hardware connecting the frames (bolts, nuts and washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories for use with the ASP Pipe and Equipment Support Systems such as hangers, clamps and protection pads are found listed in the Accessories Section of this catalog.

SS1000 Series – 17" Circular Weight Disbursing Base



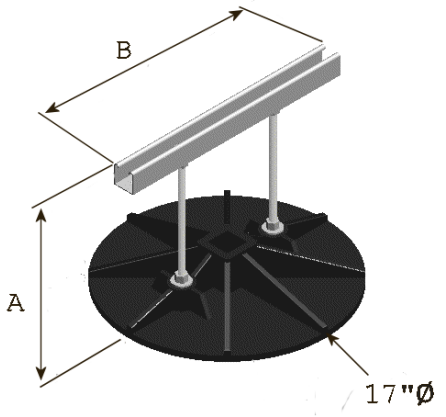
Model	Dimensions		Weight
	A	B	
SS1000	5"/12.70 cm	18"/45.72cm	7 lb/3.18 kg

SS1000 – Pipe Support – Is designed to support conduit or pipe up to Ø8". Strut is bolted directly to circular base by ½" bolts. Strut clamps are suggested to hold piping. Weight disbursed over 227 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2" X 2-1/2" Bolts; 1/2" Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
SS1000A	14"/35.56 cm	18"/45.72cm	7 lb/3.18 kg

SS1000A – Adjustable Pipe Support – Is designed to support conduit or pipe up to Ø8". Height of channel is adjustable along the length of the threaded rods to 14". Use in connection with strut clamps or roller accessories for pipe support. Weight disbursed over 227 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2" Threaded Rods; 1/2" Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads

SS1000 Series – 17" Circular Weight Disbursing Base

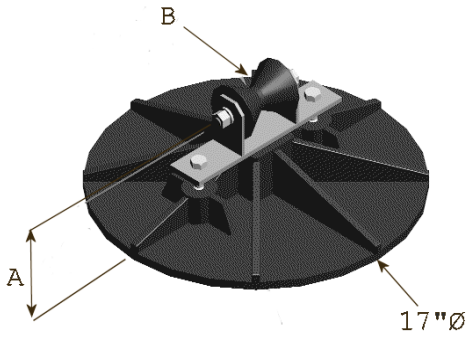
SS1000R –
Pipe Support with Roller – Is designed to support conduit or pipe up to Ø4". Roller mechanism allows for pipe movement. Weight disbursed over 227 sq. in. per support.

Roller: 4" SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

Hardware: 1/2" X 2-1/2" Bolts with 1/2" Nuts and Washers; Roller uses 1/ 2" X 5-1/2" Bolts with 1/2" Nuts and Washers, available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
SS1000R	6-1/4"/15.88cm	4"/10.20cm	7-1/2 lb/3.40 kg

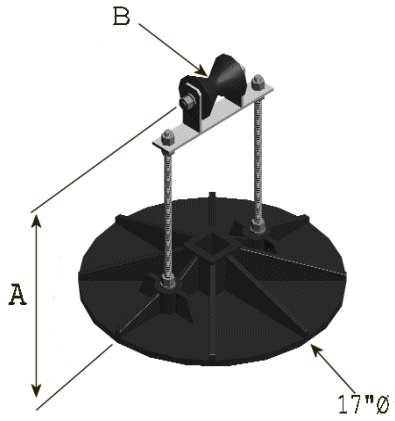
SS1000RA –
Pipe Support with Adjustable Roller – Is designed to support conduit or pipe up to Ø4". Height of roller mechanism can be adjustable along the length of the 12" threaded rods. Weight disbursed over 227 sq. in. per support.

Roller: 4" SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

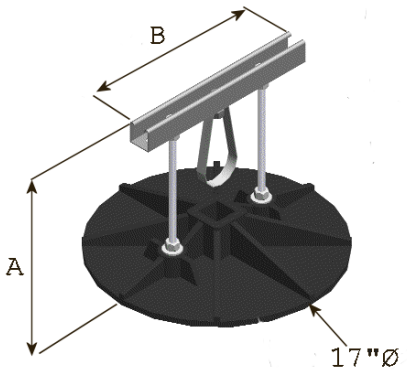
Hardware: 1/2" Threaded Rods (12" high) with 1/2" Nuts & Washers; Roller uses 1/2" X 5-1/2" Bolt with 1/2" Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
SS1000RA	14-1/2"/36.83cm	4"/10.20cm	12 lb/5.44 kg

SS1000 Series – 17" Circular Weight Disbursing Base



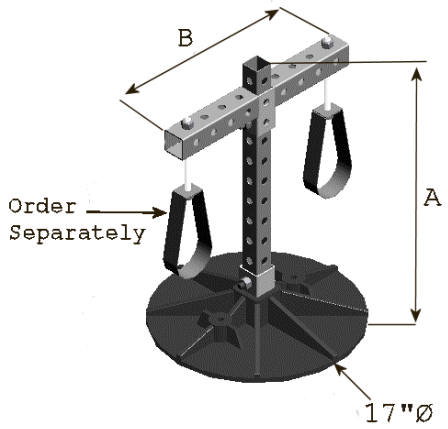
Model	Dimensions		Weight
	A	B	
SS1000H	14"/35.56 cm	18"/45.72cm	10 lb/4.54 kg

SS1000H –
Pipe Support with Hanger – Is designed to support conduit or pipe up to Ø4". Hanger mechanism allows for suspending pipe at various heights. Use with Clevis or Swivel Hanger. Weight disbursed over 227 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Clevis or Swivel Hanger; ½" Threaded Rods, Nuts, & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
SS1000A	14"/35.56 cm	18"/45.72cm	7 lb/3.18 kg

SS1000T –
Adjustable Pipe Support – Is designed to support conduit or pipe up to Ø4". Hanger mechanism allows for suspending pipe at various heights. Use with Clevis or Swivel Hanger. Weight disbursed over 227 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 gauge square tubing; 1-7/8" X 1-7/8"
12 gauge square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

Hardware: 1/2" X 2-1/2" Bolts with 1/2" Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes. [Clevis or Swivel Hanger & 1/2" Threaded Rod ordered separately]

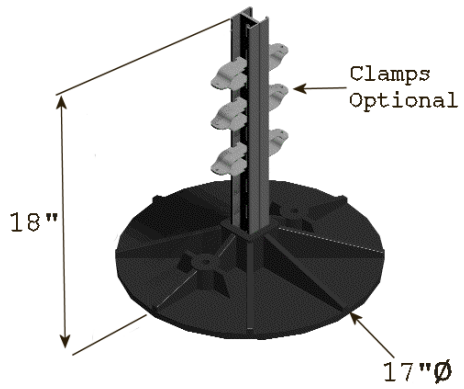
Accessories: Swivel Hangers; Protection Pads

SS1000 Series – 17” Circular Weight Disbursing Base

SS1000B –
Pipe Support Strut Bar – Is designed to support pipe up to Ø½”. Use optional clamps to secure pipe. Standard height is 18”. Custom heights available. Weight disbursed over 227 sq. in. per support.

Frame: 1-5/8” X 1-5/8” Back-to-Back 14 gauge Channel available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

Accessories: Pipe Clamps; Protection Pads

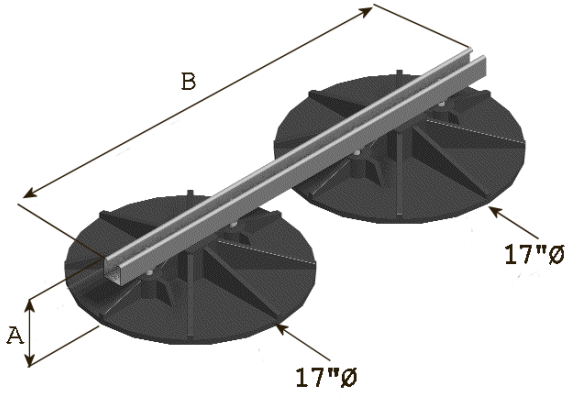


SS2000CB –
Cross Brace Bridge – Is designed to support equipment units or a series of pipes. Strut is bolted directly to two circular bases by 1/2” X 2-1/2” bolts. Strut clamps are suggested to hold piping. Weight disbursed over 454 sq. in. per support.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2” X 2-1/2” Bolts; 1/2” Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
SS2000SB/36	5”/12.70cm	36”/91.4cm	12 lb/5.44 kg
SS2000SB/48	5”/12.70cm	48”/121.9cm	14 lb/6.35 kg
SS2000SB/60	5”/12.70cm	60”/152.40cm	16 lb/7.26 kg

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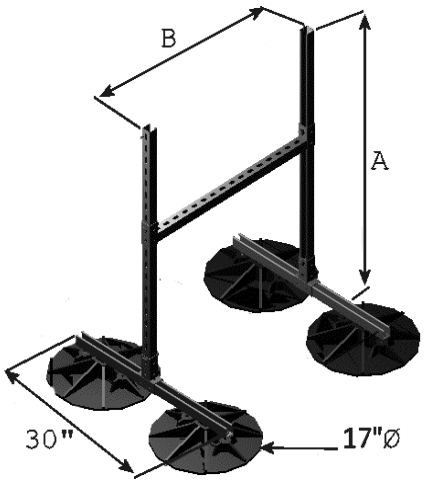
SS1000 Series – 17” Circular Weight Disbursing Base



Model	Dimensions		Weight
	A	B	
SS2000D/18	36”/91.4cm	18”/45.7cm	24 lb/10.88 kg
SS2000D/24	36”/91.4cm	24”/61.0cm	26 lb/11.79 kg
SS2000D/36	36”/91.4cm	36”/91.4cm	28 lb/12.70 kg
SS2000D/48	36”/91.4cm	48”/121.9cm	30 lb/13.61 kg

SS4000P – Adjustable Support Bridge – Is designed to support Ø4” and larger pipes. Crossbar is height adjustable. Optional items include suspending hangers from crossbar to support pipe at required heights and using strut clamps or rollers directly on crossbar. Weight disbursed over 908 sq. in. per support.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2” X 2-1/2” Bolt & 1/2” Nut; Frame bolted to Support Base with 1/2” X 2-1 2” Bolts, 1/2” Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: 1/2” Threaded Rod; Clevis Hangers; Swivel Hangers; Strut Clamps; Rollers; Protection Pads

Clevis Hanger

Swivel Hanger

Clevis and Swivel Pipe Hangers – Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on “H” shaped Support Bridge as well as along the length of ½” threaded rod.

See **“Accessories”** section for ordering and additional Pipe Hanger information.

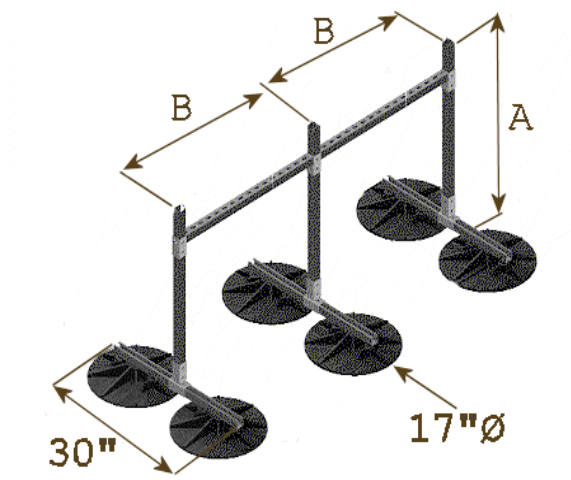
SS1000 Series – 17" Circular Weight Disbursing Base

SS6000P – Adjustable Support Bridge – Is designed to support Ø4" and larger pipes. Crossbar is height adjustable. Optional items include suspending hangers from crossbar to support pipe at required heights and using strut clamps or rollers directly on crossbar. Weight disbursed over 1362 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to Support Base with 1/2" X 2-1 2" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: 1/2" Threaded Rod; Clevis Hangers; Swivel Hangers; Strut Clamps; Rollers; Protection Pads



Model	Dimensions		Weight
	A	B	
SS6000P/18	36"/91.44cm	18"/45.72cm	78 lb/35.38 kg
SS6000P/24	36"/91.44cm	24"/60.96cm	81 lb/36.74 kg
SS6000P/36	36"/91.44cm	36"/91.44cm	84 lb/38.10 kg

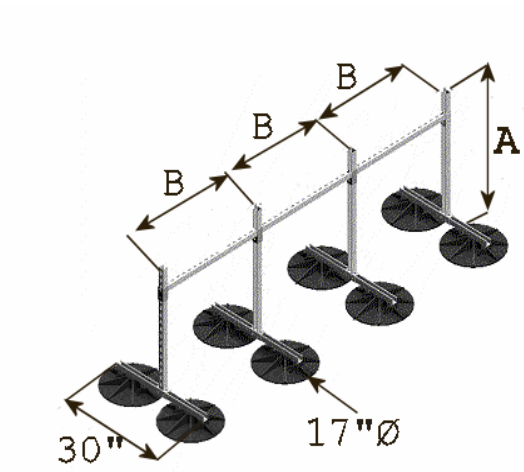
Clevis and Swivel Pipe Hangers – Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

See **"Accessories"** section for ordering and additional Pipe Hanger information.

Clevis Hanger

Swivel Hanger

SS1000 Series – 17" Circular Weight Disbursing Base



Model	Dimensions		Weight
	A	B	
SS8000P/18	36"/91.44cm	18"/45.72cm	104 lb/47.17 kg
SS8000P/24	36"/91.44cm	24"/60.96cm	108 lb/48.99 kg
SS8000P/36	36"/91.44cm	36"/91.44cm	112 lb/50.80 kg

SS8000P – Adjustable Support Bridge – Is designed to support Ø4" and larger pipes. Crossbar is height adjustable. Optional items include suspending hangers from crossbar to support pipe at required heights and using strut clamps or rollers directly on crossbar. Weight disbursed over 1362 sq. in. per support.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to Support Base with 1/2" X 2-1 2" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: 1/2" Threaded Rod; Clevis Hangers; Swivel Hangers; Strut Clamps; Rollers; Protection Pads

Clevis Hanger

Swivel Hanger

Clevis and Swivel Pipe Hangers – Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

See **"Accessories"** section for ordering and additional Pipe Hanger information.

Equipment Supports – 17” Circular Weight Disbursing Base

The **SS1000 Series** Equipment Support Systems are designed specifically for use on rooftop without adhesive, roof penetrations, flashings or damage to roofing system

The Support Systems are built using a patented 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.

The Circular Base dimensions are 3"H X 17" in diameter and are designed for weight displacement. The Circular Base has molded insert for square tubing as well as two threaded rod couplings molded in.

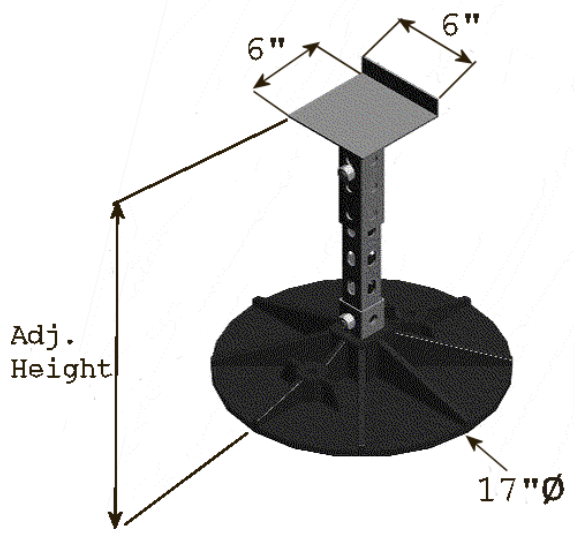
The LEED information on the Circular Base includes a minimum 40 % post-industrial recycled polypropylene with UV inhibitors.

The equipment support frames are available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

The hardware connecting the frames bolts, nuts and washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories for use with the ASP Equipment Support Systems such as protection pads are found listed in the Accessories Section of this catalog.

Equipment Supports – 17” Circular Weight Disbursing Base

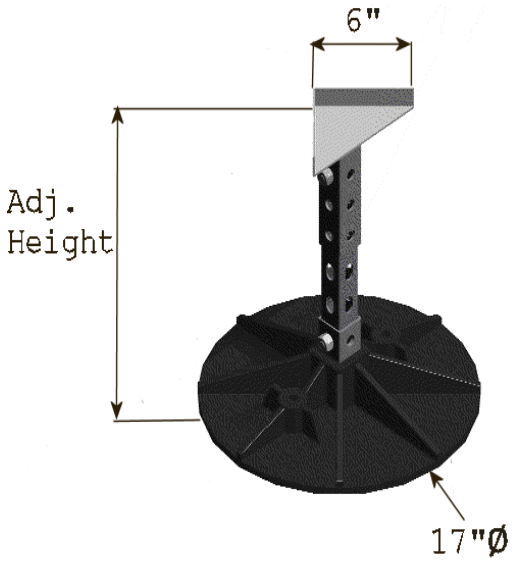


SS1000E –
Equipment Support – Is designed to support light-weight HVAC equipment with 6” X 6” galvanized steel support bracket. Height is telescopic to 18”. When equipment requires corner supports, use **SS1000EC** (below) as an alternative. Weight disbursed over 227 sq. in. per support.

Frame: 6”X6” Steel Support Bracket, Hot-Dip Galvanized welded to 1-7/8” X 1-7/8” 12 gauge square tubing supported by 1-5/8” X 1-5/8” 12 gauge square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

Hardware: 1/2” X 2-1/2” Bolts; 1/2” Nuts, & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



SS1000EC –
Equipment Support Corner – Is designed to support light-weight HVAC equipment on 6” X 6” galvanized steel support bracket. Height is telescopic to 18”. When equipment requires side supports, use **SS1000E** as an alternative. Weight disbursed over 227 sq. in. per support.

Frame: 6”X6” Steel Support Bracket, Hot-Dip Galvanized welded to
1-7/8” X 1-7/8” 12 gauge square tubing supported by 1-5/8” X 1-5/8” 12 gauge square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

Hardware: 1/2” X 2-1/2” Bolts; 1/2” Nuts, & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads

Equipment Supports – 17" Circular Weight Disbursing Base

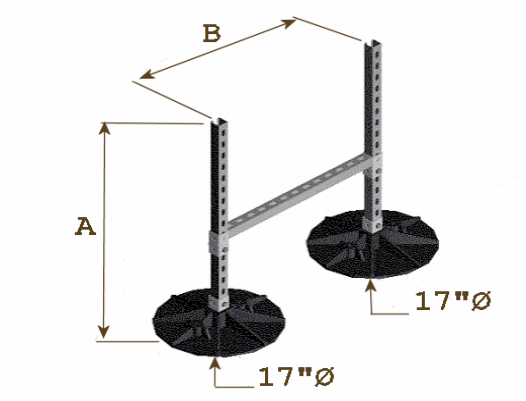
SS2000D – Adjustable Duct/Pipe Support

– Is designed to support HVAC duct with adjustable height. Use in connection with strut clamps or roller accessories for pipe support. Weight disbursed over 454 sq. in. per support. Custom heights are available.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets; 1/2" X 2-1/2" Bolts; 1/2" Nuts available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Rollers; Protection Pads



Model	Dimensions		Weight
	A	B	
SS2000D/18	36"/91.4cm	18"/45.7cm	24 lb/10.88 kg
SS2000D/24	36"/91.4cm	24"/61.0cm	26 lb/11.79 kg
SS2000D/36	36"/91.4cm	36"/91.4cm	28 lb/12.70 kg
SS2000D/48	36"/91.4cm	48"/121.9cm	30 lb/13.61 kg

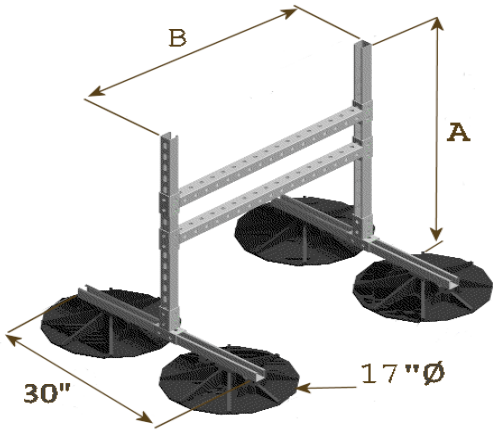
SS4000E – Equipment Support Stand

– Is designed to carry small to medium wall mounted equipment enclosures where no wall is available. Weight disbursed over 908 sq. in. per support. Custom heights are available.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes; 1-7/8" X 1-7/8" 12 ga. square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

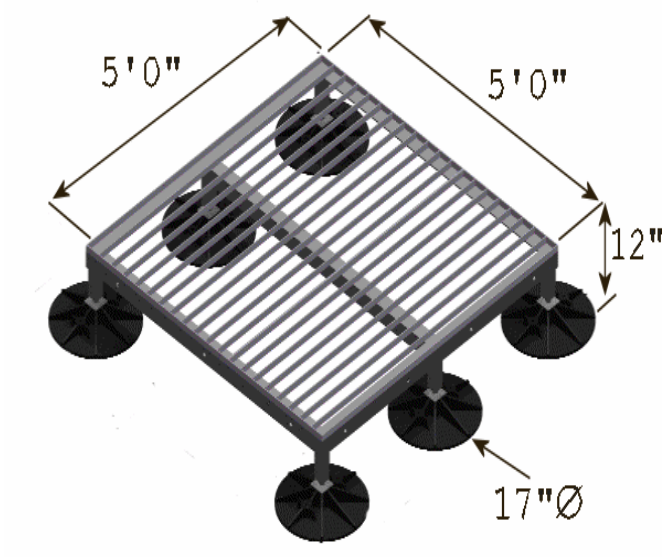
Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to Support Base with 1/2" X 2-1/2" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
SS4000E/24	36"/91.44cm	24"/60.96cm	56 lb/25.40 kg
SS4000E/36	36"/91.44cm	36"/91.44cm	59 lb/26.76 kg
SS4000E/48	36"/91.44cm	48"/121.92cm	62 lb/28.12 kg
SS4000E/60	36"/91.44cm	60"/152.40cm	67 lb/30.39 kg

Equipment Supports – 17” Circular Weight Disbursing Base

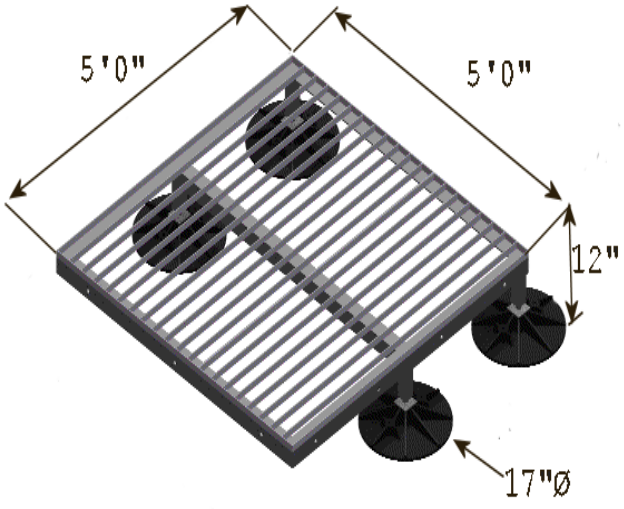


HV0505B – Base Platform – Is designed to support HVAC units or transformers. Base Platform is expandable on all sides. The height of the platform is adjustable to 12” H with adjustable legs. Custom heights are available.

Frame: 4”X4” Angle Iron ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 3/4” X 1-1/2” Bolts and 3/4” Nuts (used when additional platform sections are added) available in Hot-Dip Galvanized finish.

Accessories: Protection Pads



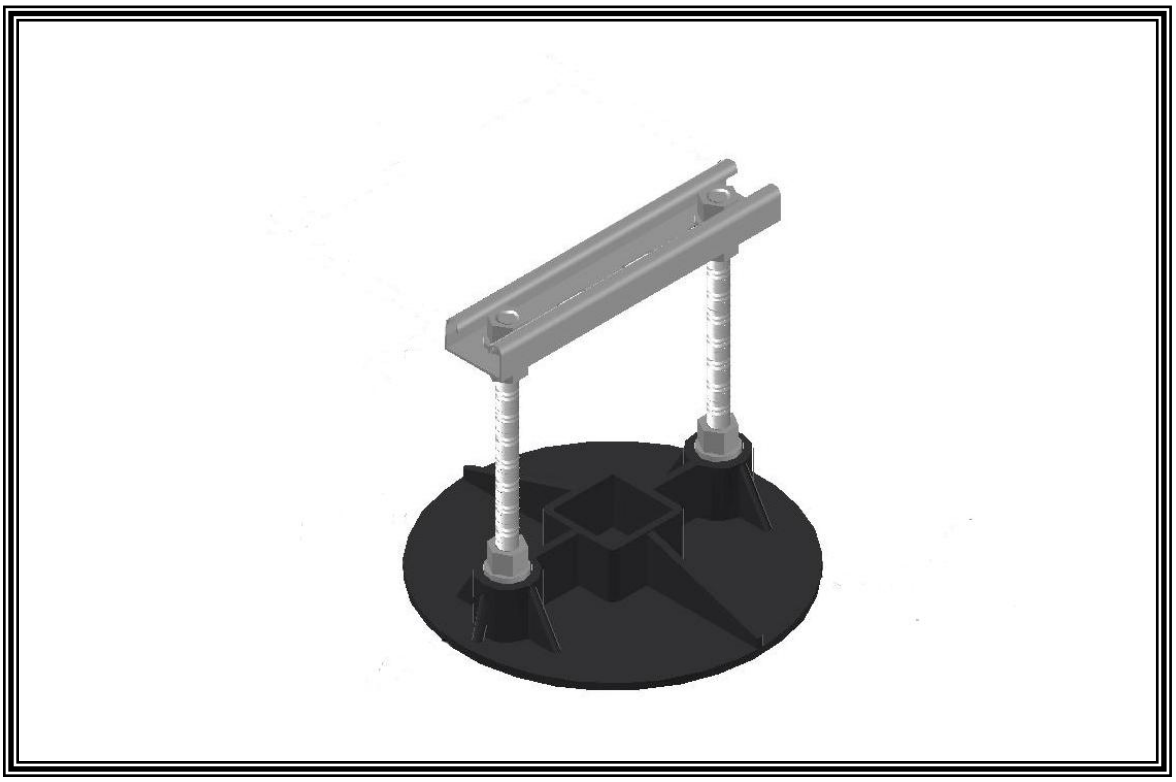
HV0505E – Base Platform Extension – Is designed as an extension to the HV0505B Base Platform to support HVAC units or transformers. The height of the platform is adjustable to 12” H with adjustable legs. Custom heights are available.

Frame: 4”X4” Angle Iron ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 3/4” X 1-1/2” Bolts and 3/4” Nuts (used when additional platform sections are added) available in Hot-Dip Galvanized finish.

Accessories: Protection Pads

SS500 Series – 8-1/2” Circular Base



The **SS500 Series** Pipe and Conduit Supports are designed specifically for use on rooftop without adhesive, roof penetrations, flashings or damage to roofing system.

The Pipe and Conduit Supports are built using an 8-1/2" circular base, injected molded polypropylene.

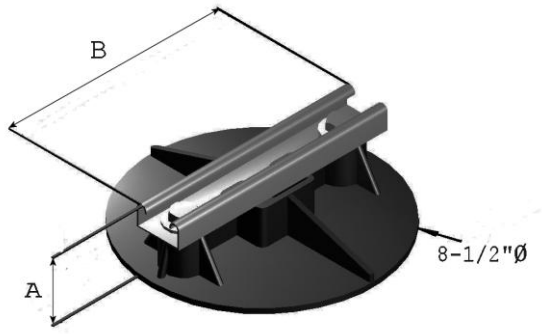
The **SS500** Circular Base dimensions are 1-1/2"H X 8-1/2" in diameter and are designed to support conduit and piping up to 4” Ø.

The **SS500** Circular Base has molded insert for square tubing as well as two threaded ½” rod couplings molded in.

The pipe and conduit supports are also available with adjustable height.

The LEED information on the Circular Base includes a minimum 40 % post-industrial recycled polypropylene with UV inhibitors.

SS500 Series – 8-1/2" Circular Base



Model	Dimensions		Weight
	A	B	
SS500	2-1/2"/6.35 cm	8"/20.32 cm	2 lbs/0.91 kg

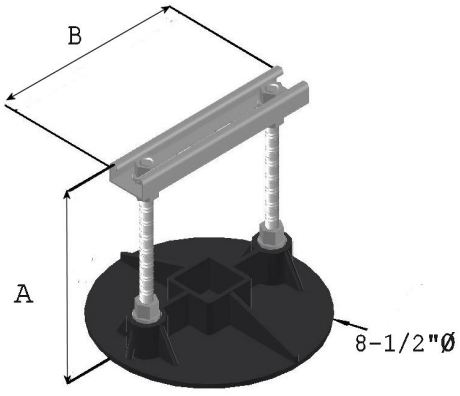
SS500 – Pipe Support

– Is designed to support conduit or gas pipe lines up to Ø4". Strut is bolted directly to circular base by ½" bolts. Strut clamps are suggested to hold piping.

Frame: 13/16" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2" X 1" Bolts, available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes - 1/2" Rod Couplers inserts

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
SS500A	7-5/8"/19.37 cm	8"/20.32 cm	3 lbs/1.36 kg

SS500A – Adjustable Pipe Support

– Is designed to support conduit or pipe up to Ø4". Height of channel is adjustable along the length of the 7" threaded rods. Use in connection with strut clamps or roller accessories for pipe support.

Frame: 13/16" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2" Threaded Rods (7"long); 1/2" Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes. 1/2" Rod Couplers inserts

Accessories: Strut Clamps; Protection Pads

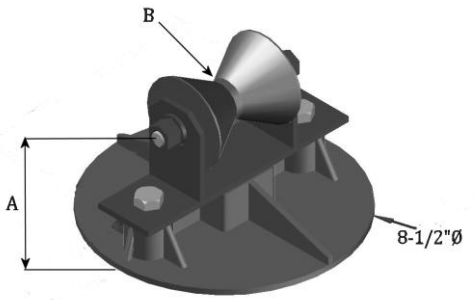
SS500R – Pipe Support with Roller – Is designed to support conduit or pipe up to Ø4". Roller mechanism allows for pipe movement.

Roller: 4" SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

Hardware: 1/2" X 1" Bolts; Roller uses 1/2" X 5" Bolts with 1/2" Nuts, available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes. 1/2" Rod Couplers inserts

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
SS500R	4"/10.16 cm	4"/10.16 cm	5lbs/2.27 kg

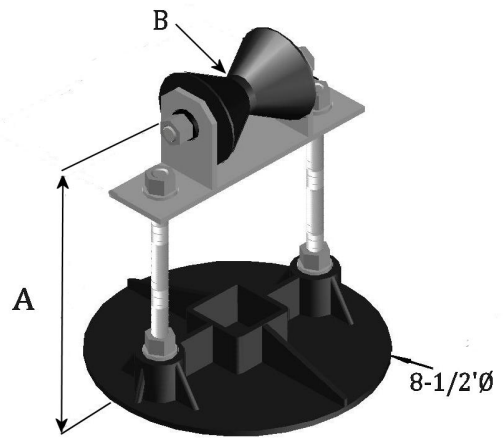
SS500RA – Pipe Support with Adjustable Roller – Is designed to support conduit or pipe up to Ø4". Height of roller mechanism can be adjustable along the length of the 7" threaded rods.

Roller: 4" SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

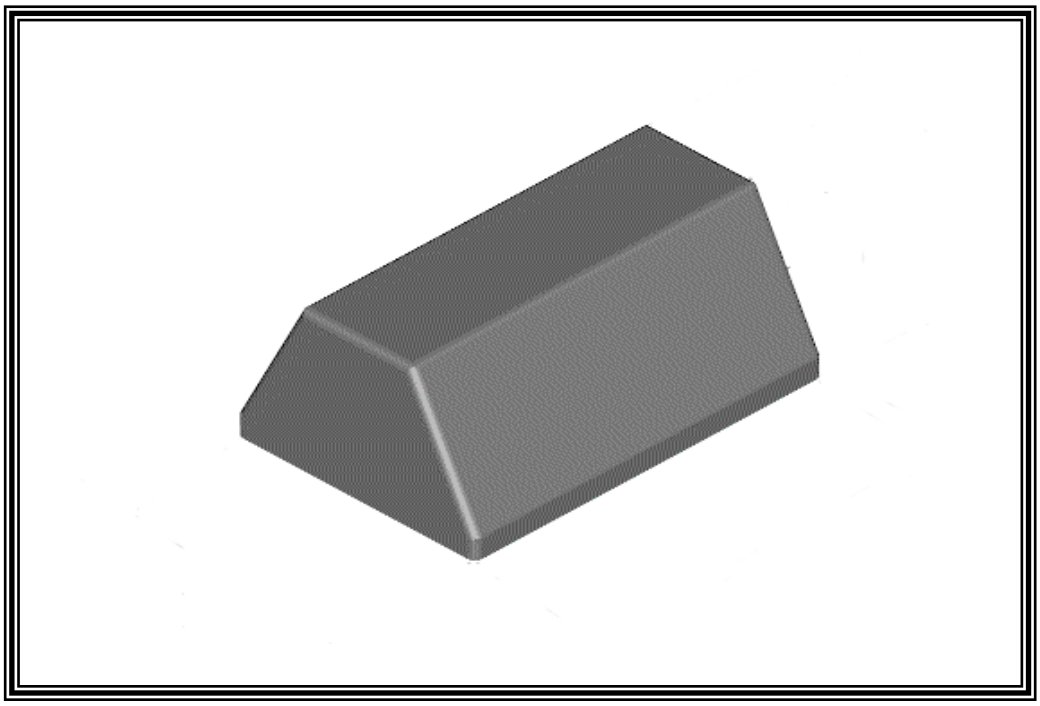
Hardware: 1/2" Threaded Rods (7" long) with 1/2" Nuts & Washers; Roller uses 1/2" X 5" Bolt with 1/2" Nut available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes - 1/2" Rod Couplers inserts

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
SS500RA	9"/22.86 cm	4"/10.16 cm	6 lbs/2.72 kg

EcoCurb Supports – Plastic or Rubber Curb Supports



The **EcoCurb** Pipe Support Systems are designed specifically for use on rooftop without adhesive, roof penetrations, flashings or damage to roofing system. The **EcoCurb** was designed to replace toxic wooden blocks on rooftops with environmentally friendly recycled products and are available in plastic or rubber.

The **RUBBER** **EcoCurb** is manufactured from recycled rubber that has been vulcanized. The LEED information on the rubber **EcoCurb** is 100% recycled pre-consumer rubber.

The **PLASTIC** **EcoCurb** is manufactured from extruded Recycled Plastic with a density 57-60 lbs/ft^3 and compressive strength (psi) 3500. The LEED information on the plastic **EcoCurb** is a minimum 96% comingled post consumer and/or post industrial recycled plastics with UV stability additives.

The **EcoCurb** dimensions are 4" high X 6" wide, in length of 6", 9" or 13"

The pipe and equipment support frames are available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

The hardware connecting the frames (bolts, nuts and washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories for use with the **EcoCurb** Support Systems such as clamps and protection pads are found listed in the Accessories Section of this catalog.

EcoCurb Supports – Plastic or Rubber Curb Supports

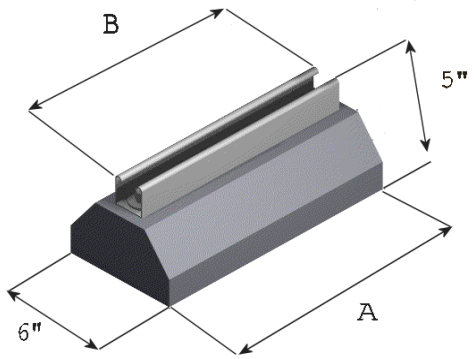
PEC-S – <u>PLASTIC</u> EcoCurb Support with Strut

– Is designed to support conduit or pipe sizes up to ∅8". Strut is bolted directly to EcoCurb support by 3/8" X 1-1/2" Lag Bolts with 3/8" washers. Strut clamps are suggested to hold piping.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
PEC9S	9"/22.86cm	8"/20.32cm	5-1/2 lb/2.49kg
PEC13S	13"/33.02cm	12"/30.48cm	8-1/2 lb/3.86kg
PEC1609S	9"/22.86cm	16"/40.64cm	6-1/2 lb/2.95kg
PEC2413S	13"/33.02cm	24"/60.96cm	10 lb/4.54kg

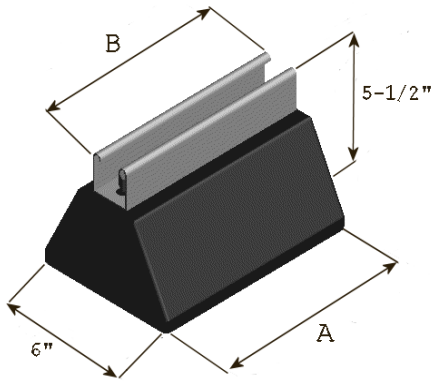
REC-S – <u>RUBBER</u> EcoCurb Support with Strut

– Is designed to support conduit or pipe sizes up to ∅ 8". Strut is bolted directly to EcoCurb support by 1/2" X 3-1/2" Bolts, 1/2" Nuts and Washers. Strut clamps are suggested to hold piping.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

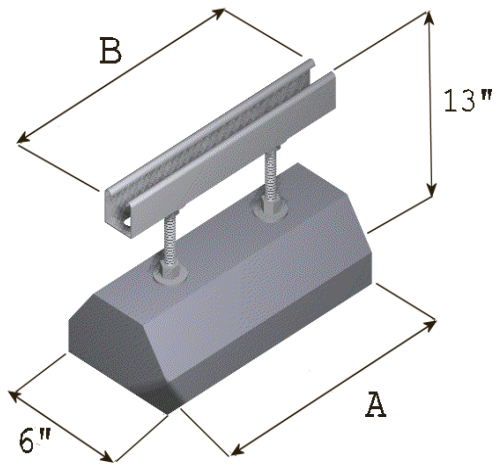
Hardware: 1/2" X 3-1/2" Bolts; 1/2" Nuts and Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
REC9S	9"/22.86cm	8"/20.32cm	9-1/2 lb/4.31kg
REC13S	13"/33.02cm	12"/30.48cm	13 lb/5.90kg
REC1609S	9"/22.86cm	16"/40.64cm	10-1/2 lb/4.76kg
REC2413S	13"/33.02cm	24"/60.96cm	14 lb/6.35kg

EcoCurb Supports – Plastic or Rubber Curb Supports



Model	Dimensions		Weight
	A	B	
PEC9SA	9”/22.86cm	8”/20.32cm	6-1/2 lb/2.95kg
PEC13SA	13”/33.02cm	12”/30.48cm	9-1/2lb/4.31kg

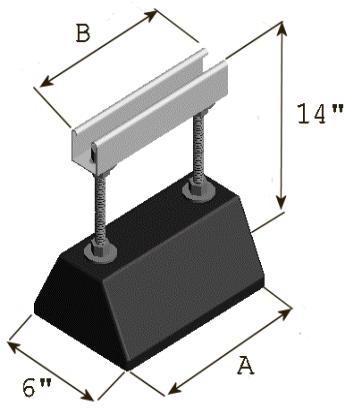
PEC-SA – <u>PLASTIC</u> EcoCurb Support with Adjustable Strut

– Is designed to support conduit or pipe sizes up to ∅8". Height of channel can be adjusted along the length of the 12” threaded rods. Strut clamps are suggested to hold piping.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2” Threaded Rods (12” high); 1/2” Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
REC9SA	9”/22.86cm	8”/20.32cm	11 lb/4.99 kg
REC13SA	13”/33.02cm	12”/30.48cm	15 lb/6.80 kg

REC-SA – <u>RUBBER</u> EcoCurb Support with Adjustable Strut

– Is designed to support conduit or pipe sizes up to ∅8". Height of channel can be adjusted along the length of the 12” threaded rods. Strut clamps are suggested to hold piping.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2” Threaded Rods (12” high); 1/2” Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads

PEC-R – PLASTIC EcoCurb Support with Roller

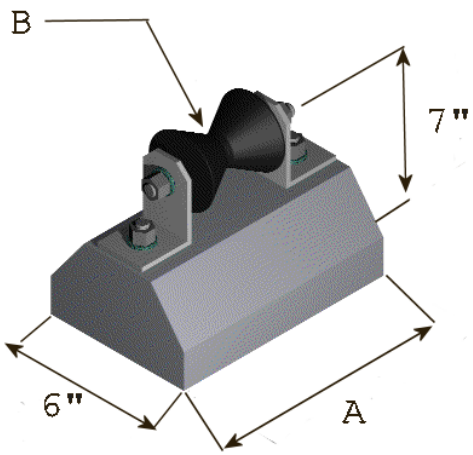
– Is designed to support shifting pipe lines sizes up to ∅4" or ∅8". System consists of either a 4" or 8" SRB plastic roller unit bolted directly to an **EcoCurb** with 3/8" X 1-1/2" Lag Bolts with 3/8" washers.

Roller: 4" or 8" SRB Plastic Roller

Roller Frame: Angle Fittings available in Pre-Galvanized Zinc or Hot-Dip Galvanized

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers; Roller uses 1/2" X 5" Bolts with 1/2" Nuts available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
PEC9R	9"/22.86cm	4"/10.20cm	7-1/2 lb/3.40kg
PEC13R	13"/33.02cm	8"/20.32cm	12 lb/5.44 kg

REC-R – RUBBER EcoCurb Support with Roller

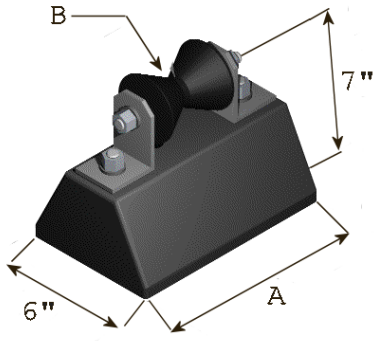
– Is designed to support shifting pipe lines sizes up to ∅4" or ∅8". System consists of either a 4" or 8" SRB plastic roller unit bolted directly to an **EcoCurb** with 1/2" X 3-1/2" Bolts, 1/2" Nuts and Washers.

Roller: 4" or 8" SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

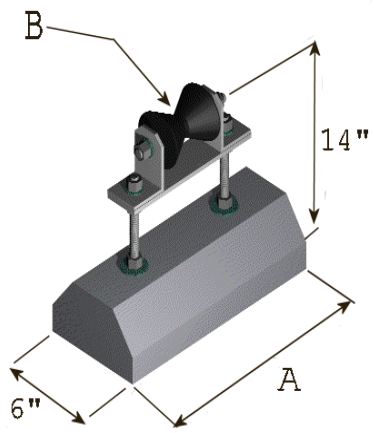
Hardware: 1/2" X 3-1/2" Bolts with 1/2" Nuts and Washers; Roller uses 1/ 2" X 5" Bolts with 1/2" Nuts and Washers, available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
REC9R	9"/22.86cm	4"/10.20cm	7 lb/3.17kg
REC13R	13"/33.02cm	8"/20.32cm	16 lb/7.48kg

EcoCurb Supports – Plastic or Rubber Curb Supports



Model	Dimensions		Weight
	A	B	
PEC9RA	9”/22.86cm	4”/10.20cm	8 lb/3.63kg
PEC13RA	13”/33.02cm	8”/20.32cm	12 lb/5.44 kg

PEC-RA – PLASTIC EcoCurb Support with Adjustable Roller

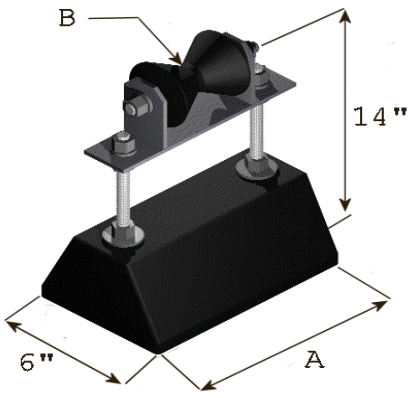
– Is designed to support shifting pipe lines sizes up to ∅4" or ∅8”. System consists of either a 4” or 8” SRB plastic roller unit bolted directly to an **EcoCurb** with 3/8” X 1-1/2” Lag Bolts with 3/8” washers.

Roller: 4” or 8” SRB Plastic Roller

Roller Frame: Hot-Dip Galvanized Steel

Hardware: 1/2” Threaded Rods (12” high) with 1/2” Nuts & Washers; Roller uses 1/2” X 5” Bolt with 1/2” Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
REC9RA	9”/22.86cm	4”/10.20cm	10-1/2 lb/4.76kg
REC13RA	13”/33.02cm	8”/20.32cm	14 lb/6.35 kg

EC-RA – UBBER EcoCurb Support with oller

– Is designed to support shifting pipe ıes sizes up to ∅4" or ∅8”. System consists either a 4” or 8” SRB plastic roller unit ıich can be adjusted along the length of the ” threaded rods. Bolts, 1/2” Nuts and ashers.

ıller: 4” or 8” SRB Plastic Roller

oller Frame: Hot-Dip Galvanized Steel

Hardware: 1/2” Threaded Rods (12” high) with 1/2” Nuts & Washers; Roller uses 1/2” X 5” Bolt with 1/2” Nuts & Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads

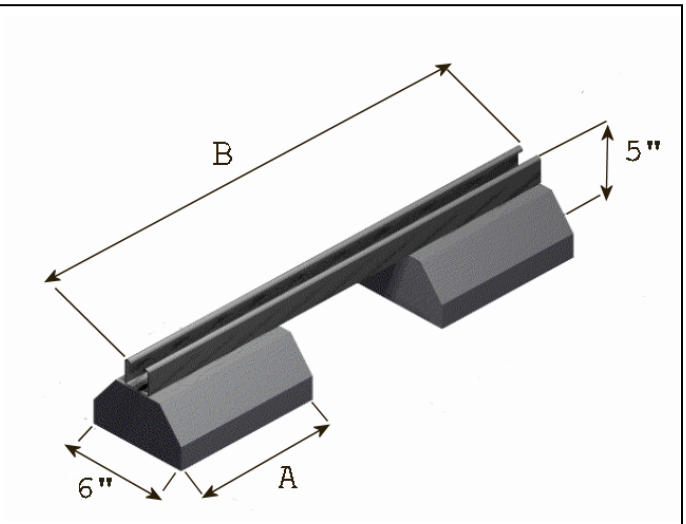
PEC-CB –
PLASTIC EcoCurb Cross Brace Bridge –

Is designed to support equipment units or a series of pipes. Strut is bolted directly to EcoCurb support by 3/8" X 1-1/2" Lag Bolts with 3/8" washers. Strut clamps are suggested to hold piping.

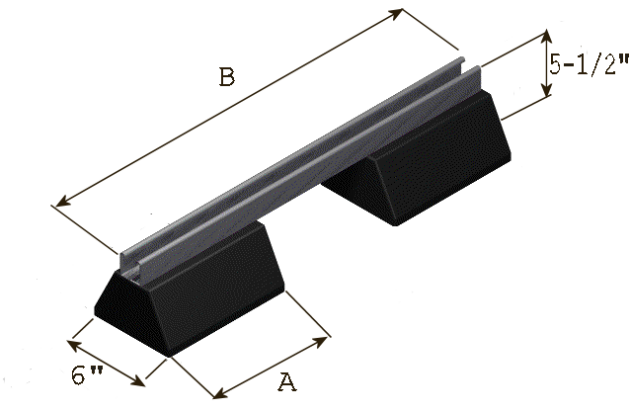
Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
PCB2409	9"/22.86cm	24"/60.96cm	16 lb/7.26kg
PCB3609	9"/22.86cm	36"/91.44cm	18 lb/8.16kg
PCB4809	9"/22.86cm	48"/121.92cm	20 lb/9.07kg
PCB3613	13"/33.02cm	36"/91.44cm	22 lb/9.98kg
PCB4813	13"/33.02cm	48"/121.92cm	24lb/10.89kg
PCB6013	13"/33.02cm	60"/152.40cm	26lb/11.79kg



Model	Dimensions		Weight
	A	B	
RCB2409	9”/22.86cm	24”/60.96cm	18 lb/8.16kg
RCB3609	9”/22.86cm	36”/91.44cm	20 lb/9.07kg
RCB4809	9”/22.86cm	48”/121.92cm	22 lb/9.98kg
RCB3613	13”/33.02cm	36”/91.44cm	27lb/12.25kg
RCB4813	13”/33.02cm	48”/121.92cm	29lb/13.15kg
RCB6013	13”/33.02cm	60”/152.40cm	31lb/14.06kg

REC-CB – <u>RUBBER</u> EcoCurb Cross Brace Bridge

– Is designed to support equipment units or a series of pipes. Strut is bolted directly to EcoCurb support by 1/2” X 3-1/2” Bolts, 1/2” Nuts and Washers. Strut clamps are suggested to hold piping.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 1/2” X 3-1/2” Bolts; 1/2” Nuts and Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads

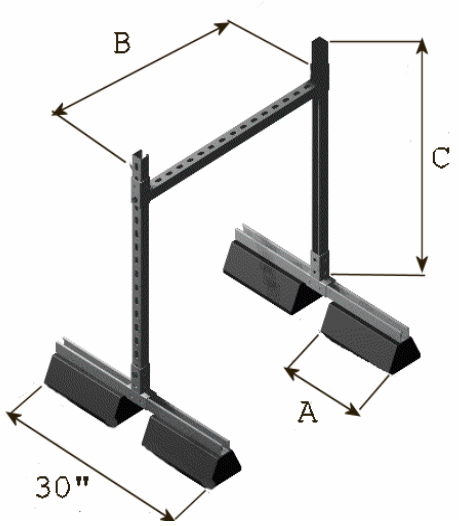
PEC-18SB & PEC-24SB – PLASTIC EcoCurb Support Bridge

– Is designed to offer stability and adjustability while supporting a series of pipes. Optional items include suspending hangers from cross bar to support pipe at various heights and using strut clamps or rollers directly on cross bar.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to EcoCurb with 1/2" X 3" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Clevis Hangers, Swivel Hangers; Strut Clamps; Roller Frame with Roller; Protection Pads



Model	Dimensions			Weight
	A	B	C	
PSB1818	9"/22.86cm	18"/45.72cm	18"/45.72cm	46 lb/20.87kg
PSB2418	9"/22.86cm	24"/60.96cm	18"/45.72cm	48 lb/21.77kg
PSB3618	13"/33.02cm	36"/91.44cm	18"/45.72cm	58 lb/26.31kg
PSB4818	13"/33.02cm	48"/121.92cm	18"/45.72cm	60 lb/27.22kg
PSB1824	9"/22.86cm	18"/45.72cm	24"/60.96cm	47 lb/21.32kg
PSB2424	9"/22.86cm	24"/60.96cm	24"/60.96cm	49 lb/21.32kg
PSB3624	13"/33.02cm	36"/91.44cm	24"/60.96cm	60 lb/27.22kg
PSB4824	13"/33.02cm	48"/121.92cm	24"/60.96cm	62 lb/28.12kg

Clevis and Swivel Pipe Hangers

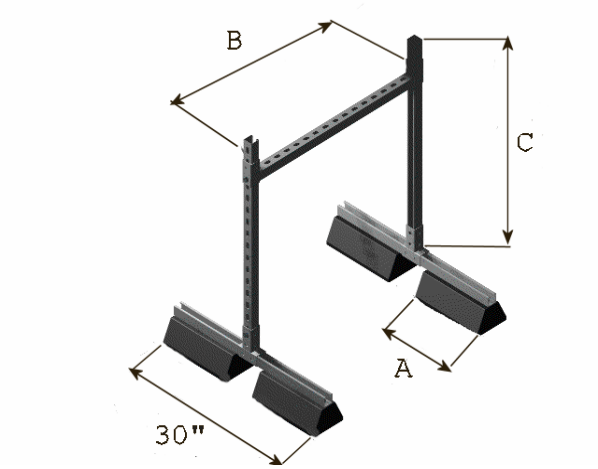
– Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

See **"Accessories"** section for ordering and additional Pipe Hanger information.

Clevis Hanger

Swivel Hanger

EcoCurb Supports – Plastic or Rubber Curb Supports



Model	Dimensions			Weight
	A	B	C	
RSB1818	9”/22.86cm	18”/45.72cm	18”/45.72cm	57 lb/25.85kg
RSB2418	9”/22.86cm	24”/60.96cm	18”/45.72cm	59 lb/26.76kg
RSB3618	13”/33.02cm	36”/91.44cm	18”/45.72cm	75 lb/34.02kg
RSB4818	13”/33.02cm	48”/121.92cm	18”/45.72cm	77 lb/34.93kg
RSB1824	9”/22.86cm	18”/45.72cm	24”/60.96cm	58 lb/26.31kg
RSB2424	9”/22.86cm	24”/60.96cm	24”/60.96cm	60 lb/27.33kg
RSB3624	13”/33.02cm	36”/91.44cm	24”/60.96cm	77 lb/34.93kg
RSB4824	13”/33.02cm	48”/121.92cm	24”/60.96cm	79 lb/35.83kg

REC-18SB & REC-24SB – <u>RUBBER</u> EcoCurb Support Bridge

– Is designed to offer stability and adjustability while supporting a series of pipes. Optional items include suspending hangers from cross bar to support pipe at various heights and using strut clamps or rollers directly on cross bar.

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2” X 2-1/2” Bolt & 1/2” Nut; Frame bolted to EcoCurb with 1/2” X 3-1/2” Bolts, 1/2” Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Clevis Hangers, Swivel Hangers; Strut Clamps; Roller Frame with Roller; Protection Pads

Clevis Hanger

Swivel Hanger

<u>Clevis and Swivel Pipe Hangers</u> –

Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on “H” shaped Support Bridge as well as along the length of ½” threaded rod.

See **<u>“Accessories”</u>** section for ordering and additional Pipe Hanger information.

EcoCurb Supports – Plastic or Rubber Curb Supports

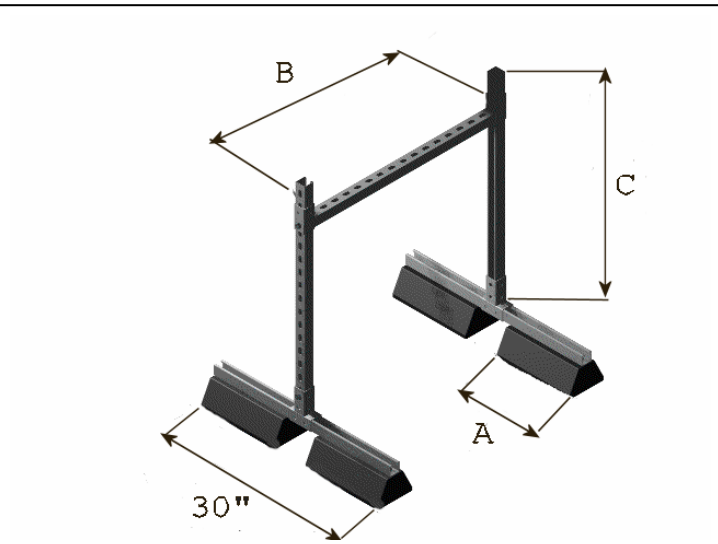
PEC-36SB & PEC-48SB – PLASTIC EcoCurb Support Bridge

– Is designed to offer stability and adjustability while supporting a series of pipes. Optional items include suspending hangers from cross bar to support pipe at various heights and using strut clamps or rollers directly on cross bar.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to EcoCurb with 1/2" X 3" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Clevis Hangers, Swivel Hangers; Strut Clamps; Roller Frame with



Model	Dimensions			Weight
	A	B	C	
PSB1836	9"/22.86cm	18"/45.72cm	36"/91.44cm	51 lb/23.13cm
PSB2436	9"/22.86cm	24"/60.96cm	36"/91.44cm	53 lb/24.04cm
PSB3636	13"/33.02cm	36"/91.44cm	36"/91.44cm	63 lb/28.58cm
PSB4836	13"/33.02cm	48"/121.92cm	36"/91.44cm	65 lb/29.48cm
PSB1848	9"/22.86cm	18"/45.72cm	48"/121.91cm	53 lb/24.04cm
PSB2448	9"/22.86cm	24"/60.96cm	48"/121.91cm	55 lb/24.95cm
PSB3648	13"/33.02cm	36"/91.44cm	48"/121.91cm	65 lb/29.48cm
PSB4848	13"/33.02cm	48"/121.92cm	48"/121.91cm	67 lb/30.39cm

Clevis and Swivel Pipe Hangers

– Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

See **"Accessories"** section for ordering and additional Pipe Hanger information.

Clevis Hanger

Swivel Hanger

EcoCurb Supports – Plastic or Rubber Curb Supports

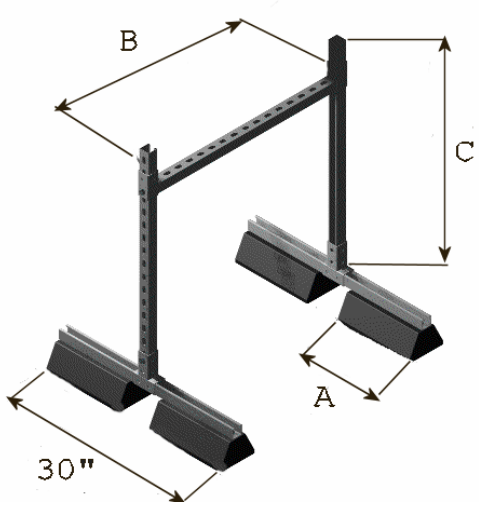
REC-36SB & REC-48SB – RUBBER EcoCurb Support Bridge

– Is designed to offer stability and adjustability while supporting a series of pipes. Optional items include suspending hangers from cross bar to support pipe at various heights and using strut clamps or rollers directly on cross bar.

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: Corner Brackets and Leg Brackets bolted with 1/ 2" X 2-1/2" Bolt & 1/2" Nut; Frame bolted to EcoCurb with 1/2" X 3-1/2" Bolts, 1/2" Nuts and Washers. Leg Brackets are available in Hot-Dip Galvanized only, all other hardware available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Clevis Hangers, Swivel Hangers; Strut Clamps; Roller Frame with Roller; Protection Pads



Model	Dimensions			Weight
	A	B	C	
RSB1836	9"/22.86cm	18"/45.72cm	36"/91.44cm	62 lb/28.12kg
RSB2436	9"/22.86cm	24"/60.96cm	36"/91.44cm	64 lb/29.03kg
RSB3636	13"/33.02cm	36"/91.44cm	36"/91.44cm	80 lb/36.29kg
RSB4836	13"/33.02cm	48"/121.92cm	36"/91.44cm	82 lb/37.19kg
RSB1848	9"/22.86cm	18"/45.72cm	48"/121.92cm	64 lb/29.03kg
RSB2448	9"/22.86cm	24"/60.96cm	48"/121.92cm	66 lb/29.94kg
RSB3648	13"/33.02cm	36"/91.44cm	48"/121.92cm	82 lb/37.19kg
RSB4848	13"/33.02cm	48"/121.92cm	48"/121.92cm	84 lb/38.10kg

Clevis and Swivel Pipe Hangers

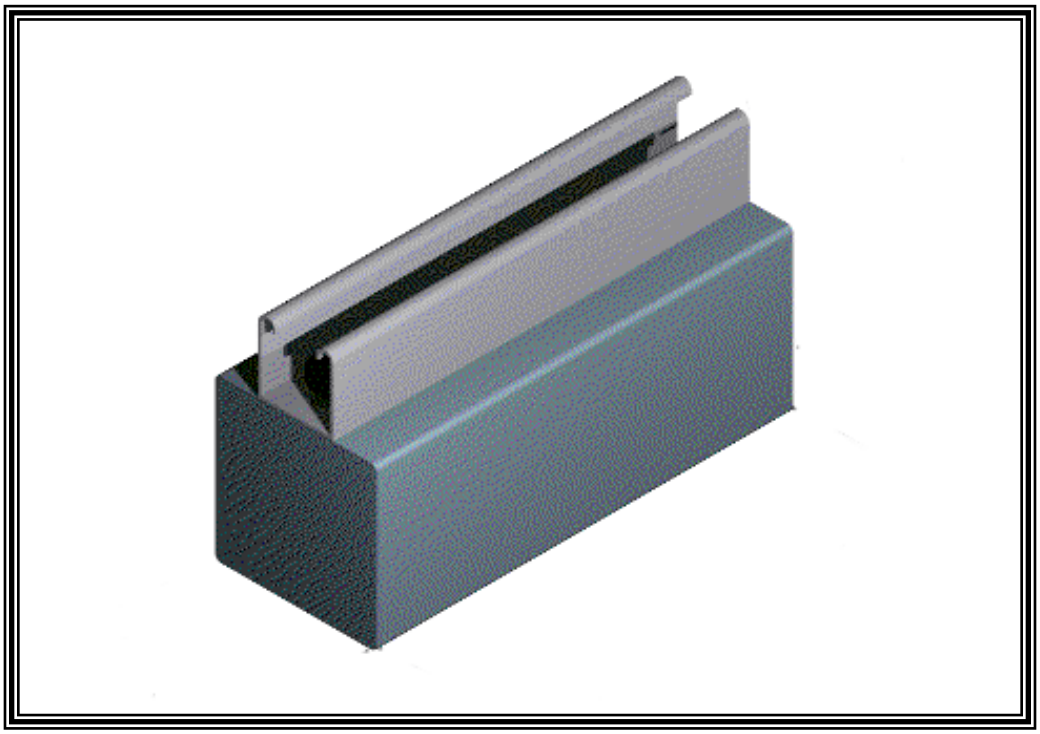
– Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

See **"Accessories"** section for ordering and additional Pipe Hanger information.

Clevis Hanger

Swivel Hanger

EcoBloc Supports – Plastic Block Supports



The plastic **EcoBloc** Pipe Supports are designed specifically for use on rooftop without adhesive, roof penetrations, flashings or damage to roofing system

The plastic **EcoBloc** was designed to replace toxic wooden blocks on rooftops with environmentally friendly recycled products.

The plastic **EcoBloc** is manufactured from extruded Recycled Plastic with a density 57-60 lbs/ft^3 and compressive strength (psi) 3500.

The LEED information on the plastic **EcoBloc** is a minimum 96% comingled post consumer and/or post industrial recycled plastics with UV stability additives.

The **EcoBloc** supports are designed to support conduit or pipe up to ∅4" by utilizing strut or rollers attached to directly to the **EcoBloc**.

Accessories for use with the plastic **EcoCurb** Support Systems such as clamps and protection pads are found listed in the Accessories Section of this catalog.

EcoBloc2S – Plastic EcoBloc with Strut Support -

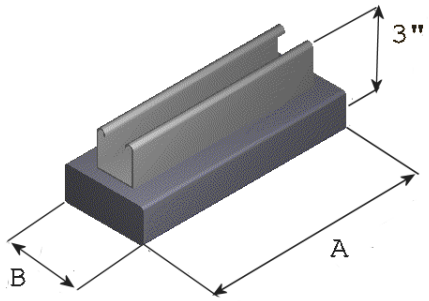
Is designed to support conduit or pipe sizes up to ∅4". Strut is attached directly to **EcoBloc** with 3/8" X 1-1/2" Lag Bolts with 3/8" washers. Strut clamps are suggested to hold conduit or piping.

EcoBloc Dimensions: Overall 1-1/2" high X 3-1/2" wide, available in length of 6", 9" or 13"

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
2EB6S	6"/15.20cm	3-1/2"/8.90cm	1-1/2 lb/0.68kg
2EB9S	9"/22.86cm	3-1/2"/8.90cm	3 lb/1.36kg
2EB13S	13"/33.02cm	3-1/2"/8.90cm	5-1/2 lb/2.49kg

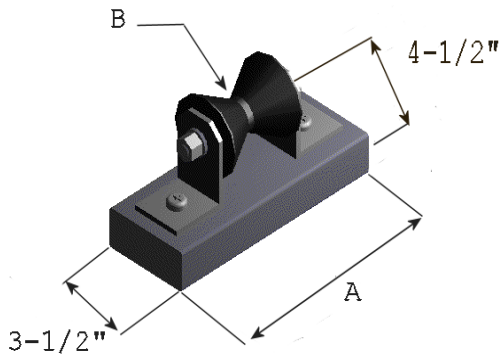
EcoBloc2R – Plastic EcoBloc with Roller Support –Is designed to support shifting pipe lines sizes up to ∅4" or ∅8". System consists of either a 4" or 8" SRB plastic roller unit bolted directly to an **EcoBloc** with 3/8" X 1-1/2" Lag Bolts with 3/8" washers.

EcoBloc Dimensions: Overall 1-1/2" high X 3-1/2" wide

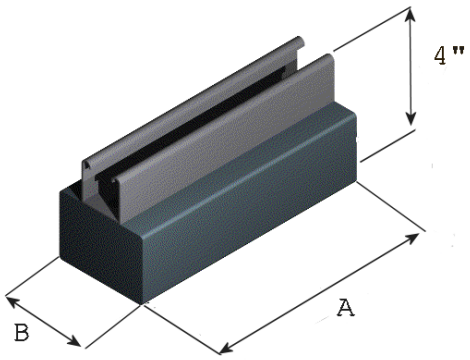
Roller Frame: Angle fitting available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers; Roller uses 1/2" X 5-1/2" Bolts with 1/2" Nuts available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
2EB9R	9"/22.86cm	4"/10.20cm	4-1/2lb/2.04kg
2EB13R	13"/33.02cm	8"/20.32cm	7 lb/3.18kg



Model	Dimensions		Weight
	A	B	
3EB6S	6”/15.20cm	3-1/2”/8.90cm	2-1/2 lb/1.13kg
3EB9S	9”/22.86cm	3-1/2”/8.90cm	4 lb/1.81kg
3EB13S	13”/33.02cm	3-1/2”/8.90cm	5 lb/2.27kg

EcoBloc3S – Plastic EcoBloc with Strut Support -

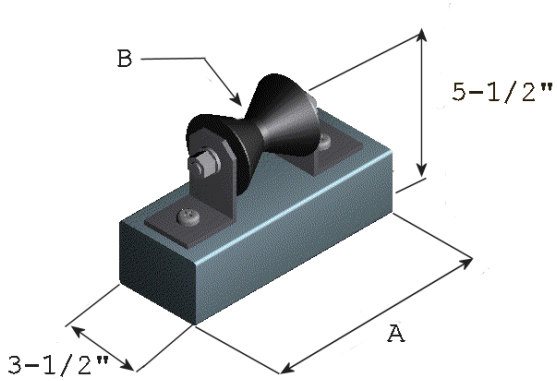
Is designed to support conduit or pipe sizes up to ∅4". Strut is attached directly to **EcoBloc** with 3/8” X 1-1/2” Lag Bolts with 3/8” washers. Strut clamps are suggested to hold conduit or piping.

EcoBloc Dimensions: Overall 2-1/2” high X 3-1/2” wide, available in length of 6”, 9” or 13”

Frame: 1-5/8” X 1-5/8” 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 3/8” X 1-1/2” Lag Bolts with 3/8” washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
3EB9R	9”/22.86cm	4”/10.20cm	5-1/2 lb/2.49kg
3EB13R	13”/33.02cm	8”/20.32cm	8 lb/3.63kg

EcoBloc3R – Plastic EcoBloc with Roller Support –

Is designed to support shifting pipe lines sizes up to ∅4" or ∅8”. System consists of either a 4” or 8” SRB plastic roller unit bolted directly to an **EcoBloc** with 3/8” X 1-1/2” Lag Bolts with 3/8” washers.

EcoBloc Dimensions: Overall 2-1/2” high X 3-1/2” wide

Roller Frame: Angle fitting available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Hardware: 3/8” X 1-1/2” Lag Bolts with 3/8” washers; Roller uses 1/2” X 5-1/2” Bolts with 1/2” Nuts available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads

EcoBloc4S – Plastic EcoBloc with Strut Support -

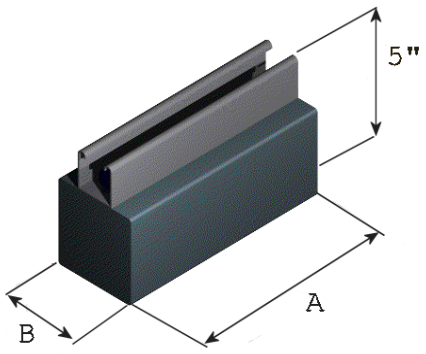
Is designed to support conduit or pipe sizes up to ∅4". Strut is attached directly to **EcoBloc** with 3/8" X 1-1/2" Lag Bolts with 3/8" washers. Strut clamps are suggested to hold conduit or piping.

EcoBloc Dimensions: Overall 3-1/2" high X 3-1/2" wide, available in length of 6", 9" or 13"

Frame: 1-5/8" X 1-5/8" 12 ga. channel (ASTM A653) - available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Strut Clamps; Protection Pads



Model	Dimensions		Weight
	A	B	
4EB6S	6"/15.20cm	3-1/2"/8.90cm	3-1/2 lb/1.59kg
4EB9S	9"/22.86cm	3-1/2"/8.90cm	4-1/2 lb/2.04kg
4EB13S	13"/33.02cm	3-1/2"/8.90cm	5-1/2 lb/2.49kg

EcoBloc4R – Plastic EcoBloc with Roller Support –

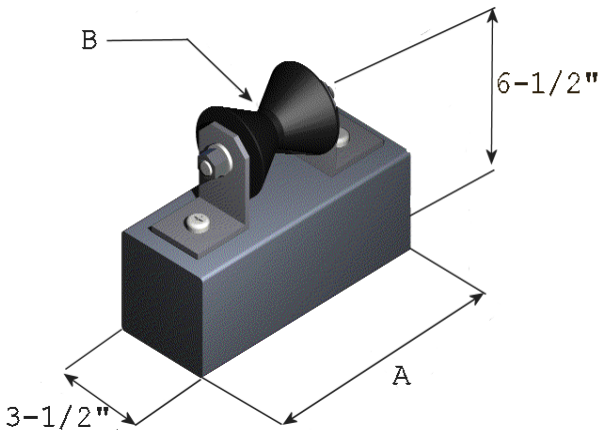
Is designed to support shifting pipe lines sizes up to ∅4" or ∅8". System consists of either a 4" or 8" SRB plastic roller unit bolted directly to an **EcoBloc** with 3/8" X 1-1/2" Lag Bolts with 3/8" washers.

EcoBloc Dimensions: Overall 3-1/2" high X 3-1/2" wide

Roller Frame: Angle fitting available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Hardware: 3/8" X 1-1/2" Lag Bolts with 3/8" washers; Roller uses 1/2" X 5-1/2" Bolts with 1/2" Nuts available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Accessories: Protection Pads



Model	Dimensions		Weight
	A	B	
4EB9R	9"/22.86cm	4"/10.20cm	7 lb/3.18kg
4EB13R	13"/33.02cm	8"/20.32cm	10 lb/4.54kg

Accessories

ASP offers many accessories used in the HVAC industry and frequently used throughout the entire construction trade industry. While we provide a wide variety of accessories, our most common are…

Pipe Hangers – Clevis and Swivel pipe hangers to be used specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed.

Crossover Bridge – Designed or either rooftop or land site applications providing an avenue for foot traffic, while protecting cable trays and pipelines.

Protection Pads - A separation sheet or pad to be placed between the roof and the support system to provide added protection to roof system.

Safety Railing - A patented safety rail system designed to be used as a stand-alone barricade or joined to form a continuous barricade system.

ASP Roof Walkway - ASP's non-penetrating roof walkway support system is designed to protect roof systems from damage caused by everyday foot traffic. Avoid costly repairs, use the ASP Walkway on every roof system.

Accessories

Clevis and Swivel Pipe Hangers –

Are utilized specifically with ASP Support Bridges to support multiple pipe runs, piping up to Ø12" or when height adjustment or pipe suspension is needed. Hangers offer complete height adjustments on "H" shaped Support Bridge as well as along the length of ½" threaded rod.

Clevis Hanger: Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Swivel Hanger: Pre-Galvanized Zinc coated finish.

Hardware: 1/2" Threaded Rod, 1/2" Nuts and Washers available in Pre-Galvanized Zinc coated, Hot-Dip Galvanized or Stainless Steel finishes.

Clevis Hanger

Swivel Hanger

Clevis Hanger		Swivel Hanger	
Item #	Hanger Size	Item #	Hanger Size
ACH 4002	2"	ASH 4002	2"
ACH 4004	4"	ASH 4004	4"
ACH 4006	6"	ASH 4006	6"
ACH 4008	8"	ASH 4008	8"
ACH 4010	10"	ASH 4010	10"
ACH 4012	12"	ASH 4012	12"

PP1919 – Roof Protection Pads –

Are designed specifically for use on rooftop without adhesive or damage to roofing system. Designed to be used as a separation sheet placed between the roof and support system when required. Provides added protection to the roof system. Not to be adhered to either roof or support system.

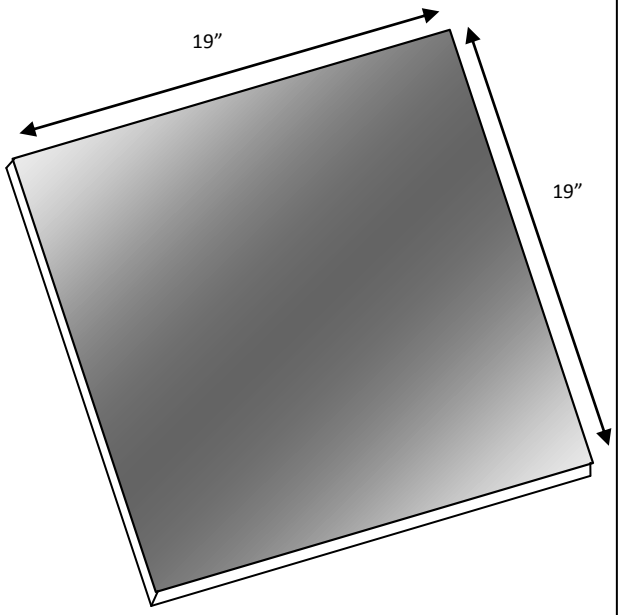
LEED: 100% Recycled Rubber – with Binders

Dimensions: Overall 19" X 19" (48.26cm X 48.26cm) square, 3/8" (.953cm) thick

Weight: 4.94 lbs./2.24 kg

Color: Black

Tensile Strength: 350 psi



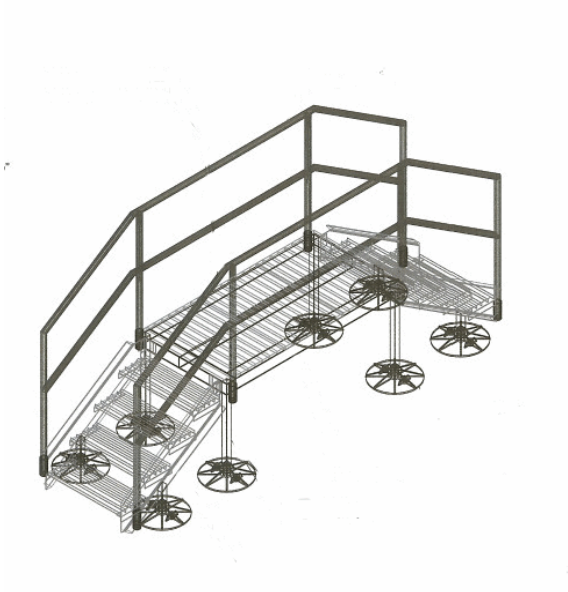
Accessories

ASP1215R - Crossover Bridge with Ramp – Is designed for either rooftop or land site application providing an avenue for foot traffic, while protecting cable trays and pipelines. Weight disbursed over 454 sq. in. per support. Custom heights, widths and lengths are available.

Frame: 2” X 2” Angle Iron ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X
1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Handrails; Protection Pads



ST0302B – Crossover Bridge with Stairs – Is designed for either rooftop or land site application providing an avenue for foot traffic, while protecting cable trays and pipelines. Weight disbursed over 454 sq. in. per support. Custom heights, widths and lengths are available.

Frame: 4” X 4” Angle Iron, ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Handrails: 1-1 /2" schedule 40 pipe, welded; Handrails are fastened to ramp by flat plate connection; all steel ASTM 572, grade 50 , hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X
1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

Accessories

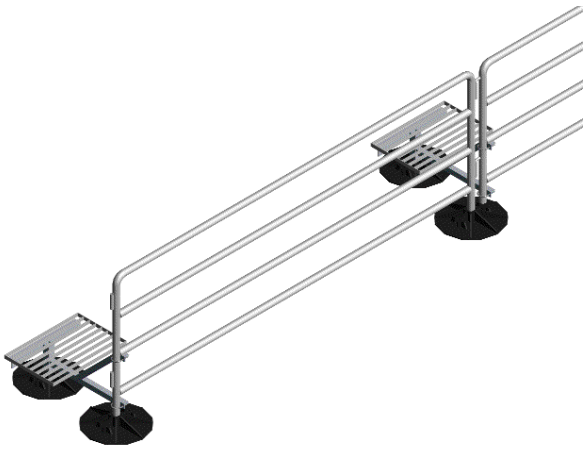
HR1004 –
4 Bar Safety Rail - Modular safety rail system can quickly and easily be installed anywhere safety barriers are needed. Non-penetrating posts connects using hinged design for versatile layout and easy assembly. Use ballast weight for additional stability when required.

Frame: 1-1/2" schedule 40 steel pipe, ASTM 572, grade 50, welded, hot-dip galvanizing after fabrication

Weight: 185 lbs

Dimensions: 10' L x 3' 6" H x 2' 5"' W

Accessories: Protection pads, ballast weight

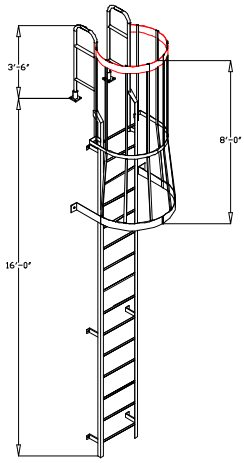


ASP1602LC –
Ladder with Safety Cage – Fixed ladder with walk-thru guardrail. Ladder is designed where height requires safe landing access and is designed to bolt onto stationary wall or ASP platforms.

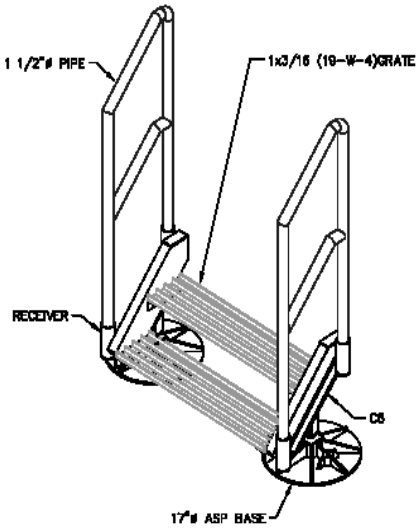
Frame: 2" X 2" X ¼" Angle Iron, ASTM 572, grade 50, ¾" Ø steel rod, welded, hot-dip galvanizing after fabrication

Dimensions: Standard width is 24", Variable heights

Accessories: Locking security guard, height 12' and above



Accessories



ST0302 –
Steps with Hand Rails – Is designed for either rooftop or land site application where steps are necessary. Custom heights, widths and lengths are available.

Frame: 6" Channel, ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Handrails: 1-1 /2" schedule 40 pipe, welded; Handrails are fastened to steps by flat plate connection; all steel ASTM 572, grade 50 , hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2" Self Tapping Screws; 1/2" X 1-1/2" Bolts and 1/2" Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

ASP102IB –
Secured Waveguide Support – Is designed for either rooftop or land site application where ridged cable support is required. Cable runs under grating for protection. Custom heights, widths and lengths are available.

Frame: 2" square tubing, ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2" Self Tapping Screws; 1/2" X 1-1/2" Bolts and 1/2" Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

QwikPort – Roof Cable Entry - The Qwikport is a lightweight, seamless roof cable entry with 24 integral entry ports.

The Qwikport can be carried by one man up an elevator to a rooftop. Seamless construction provides protection against leakage.

The 24 four-inch entry ports are part of the unit, rather than an expensive add-on. The ports are completely sealed until opened with the hole saw which is included with each unit, so unused ports can never leak. 12 ports are located on opposite sides to eliminate the need for 180 degree cable bends. The opposing ports are also offset for ease of installation. (Ports accept standard four-inch boots – not included.) Built-in flashing reduces the time required to install the roof entry.

Unlike competing products which have a small hole in the side for hand access, the entire top of the Qwikport is easily removed for cable installation.

A 20" ground bus bar is provided on each port side to ground the coax lines. Also available is the Qwikport Jr. with 12 four-inch entry ports. (13" bus bar included.)

Model	Description
QWKPRT	24 ports

Overall height is 38".

Model	Description
QWKPRT-JR	12 ports

Overall height is 27-1/2”

QwikPort Jr. – Roof Cable Entry - The QwikPort Jr. is a lightweight, seamless roof cable entry with 12 integral entry ports.

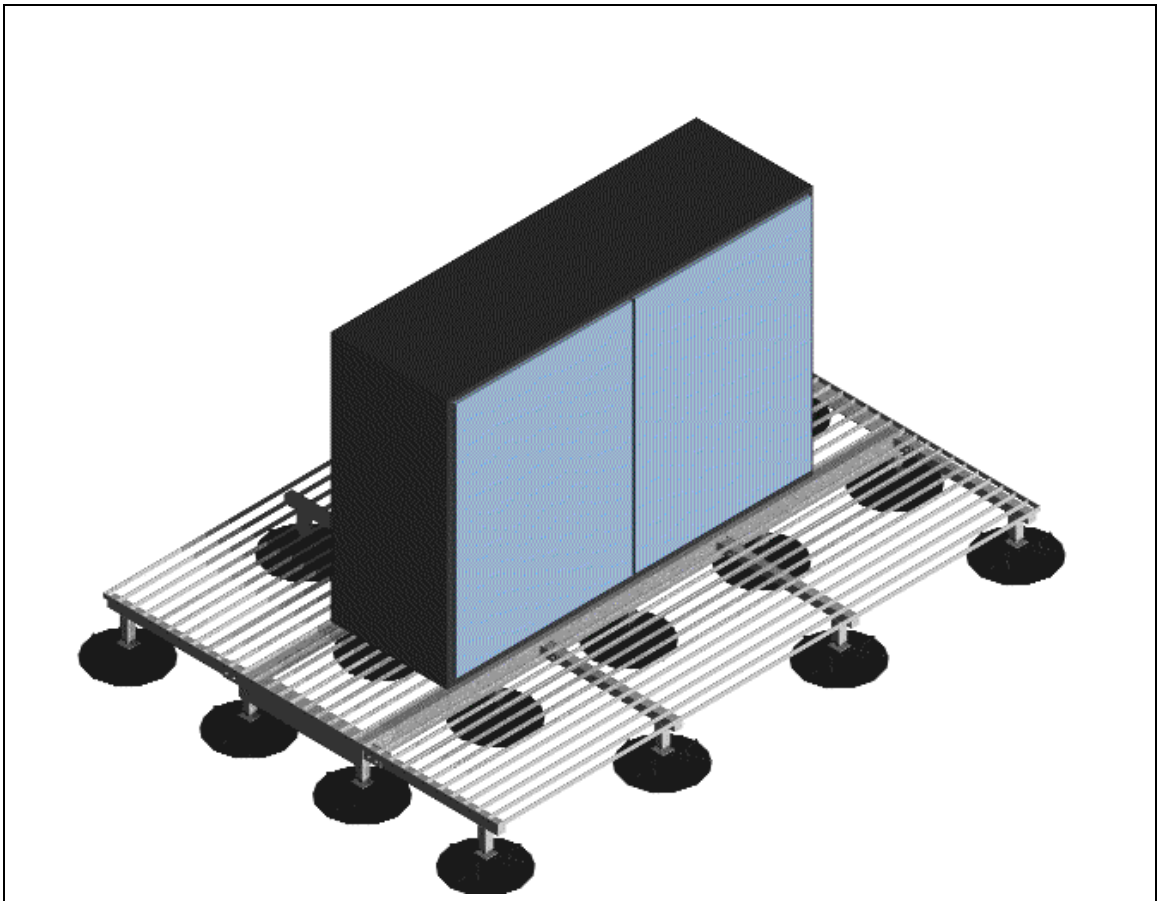
The QwikPort Jr. can be carried by one man up an elevator to a rooftop. Seamless construction provides protection against leakage.

The 12 four-inch entry ports are part of the unit, rather than an expensive add-on. The ports are completely sealed until opened with the hole saw which is included with each unit, so unused ports can never leak. 6 ports are located on opposite sides to eliminate the need for 180 degree cable bends. The opposing ports are also offset for ease of installation. (Ports accept standard four-inch boots – not included.) Built-in flashing reduces the time required to install the roof entry.

Unlike competing products which have a small hole in the side for hand access, the entire top of the QwikPort Jr. is easily removed for cable installation.

A 13" ground bus bar is provided on each port side to ground the coax lines. Also available is the QwikPort with 24 four-inch entry ports. (20” bus bar included.)

Equipment Supports – Platforms



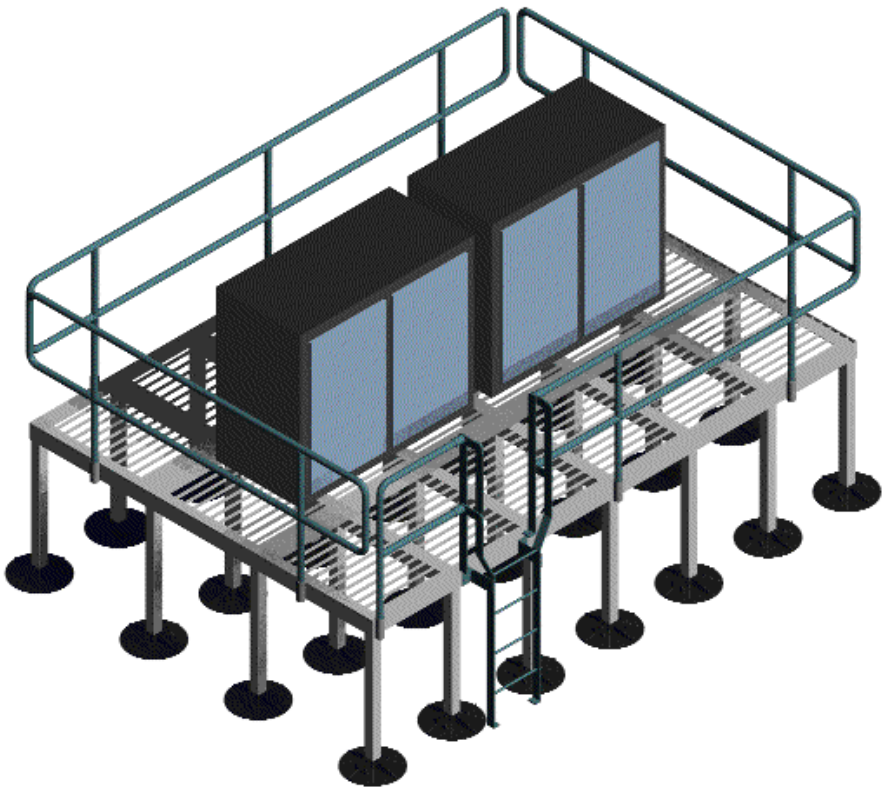
Non-Penetrating Roof Platform – Is designed to support telecommunications equipment or HVAC equipment on roof without penetrating the roof surface. The height of the platform is adjustable to 12" H with adjustable legs. Custom heights are available.

Frame: 4"X4" Angle Iron ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2" Self Tapping Screws; 3/4" X 1-1/2" Bolts and 3/4" Nuts; Hot-Dip Galvanized finish.

Accessories: Protection Pads

Equipment Supports – Platforms



Elevated Platform – Is designed to support telecommunications equipment or HVAC equipment in flood plain areas or where heights of 3' or over are required. Cross bracing is added of heights of 6 feet or higher. Custom heights are available.

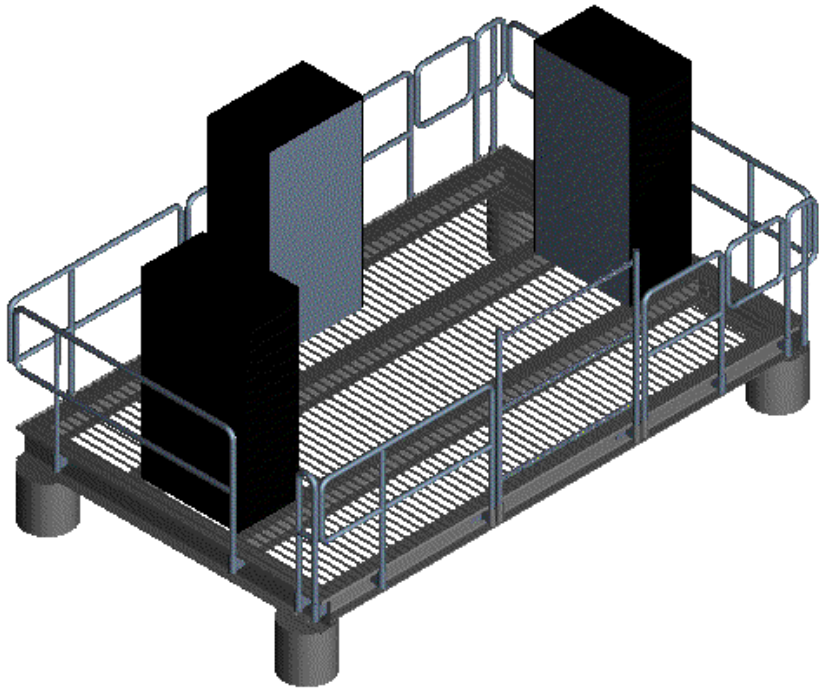
Frame: 4"X4" Angle Iron ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded. Legs are made of 3"X3" tubular steel. Platform is hot-dip galvanizing after fabrication.

Handrails: 1-1 /2" schedule 40 pipe, welded; Handrails are fastened to platform by flat plate connection; all steel ASTM 572, grade 50 , hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2" Self Tapping Screws; 3/4" X 2-1/2" Bolts and 3/4" Nuts; Hot-Dip Galvanized finish.

Accessories: Protection Pads, ladder or stairs, telco rack, cable hangers

Equipment Supports – Platforms



I-Beam Equipment Platform – Is designed to support telecommunications equipment or HVAC equipment on land sites utilizing 4 piers. The platform is completely grated allowing flexible options for equipment placement.

Frame: W10X25, W6X12 ASTM 572, grade 50 and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded.

Handrails: 1-1 /2" schedule 40 pipe, welded; Handrails are fastened to platform by flat plate connection; all steel ASTM 572, grade 50 , hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2" Self Tapping Screws; 3/4" X 2-1/2" Bolts and 3/4" Nuts; Hot-Dip Galvanized finish.

Accessories: Protection Pads, ladder or stairs, telco rack, cable hangers

Antenna Mounts

ASP3000 –
Tripod Antenna Mount – Is designed for either rooftop or land site applications engineered for quick installation. Legs are unfolded, rotated into position and secured with three bolts. Ballast weight recommended.

Mast: 2” or 4” schedule 40 pipe

Legs: 2” angle iron ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X 1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

ASP105 –
Roof Antenna Mount – Is designed specifically for light-weight, low-wind load antenna with no installation restrictions. Guy wires not required. Use for non-penetrating roof antenna mount. Ballast weight recommended.

Mast: 2” schedule 40 pipe

Frame: 2” angle iron ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X 1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

Antenna Mounts

ASP4124 –
Freestanding Antenna Mount – Is designed as a free standing support platform antenna base frame with four (4) masts. Use for non-penetrating roof antenna mount. Ballast weight recommended.

Mast: 2” or 4” schedule 40 pipe

Frame: 2” angle iron ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X 1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

ASP3003-90 –
Inside Corner Mount – Is designed as a free standing 90 degree antenna mount for inside cornrs where penetrations to the wall are not permitted. Use for non-penetrating roof antenna mount. Ballast weight recommended.

Mast: 2” or 4” schedule 40 pipe

Frame: 2” angle iron ASTM 572, grade 50, and 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 3/16" steel flat bar, welded, hot-dip galvanizing after fabrication.

Hardware: Grating Clips with 1-1/2” Self Tapping Screws; 1/2” X 1-1/2” Bolts and 1/2” Nuts available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized finishes.

Accessories: Protection Pads

Qwikmount – Non-Penetrating Roof Antenna Support – Utilizies water as ballast, the Qwikmount eliminates the cost and hassle of transporting bricks, sand, or concrete to the roof to ballast a mount. With Qwikmount, all you need is a hose and a faucet!

The segmented ballast tank of cross-linked HDPE material comes in three sections, for easier shipping and handling, and quickly bolts together to provide a stable support for your antenna.

Qwikmount may also be used in groups to form array assemblies.

The Qwikmount will support a variety of antennas for cellular, PCS, SMR, microwave and other uses. It is available with standard mast pipe size of 2" and 4" (standard pipe sizes), with special sizes available on request.

All metal parts are aluminum or hot dip galvanized steel, and all fasteners are stainless steel.

Qwikmount has a tilting mast, to allow antennas and cables to be mounted while mast is in a horizontal position.

A variety of Qwikmount accessories are available, including cable trays and cable supports, antenna mounts, antenna mounting arrays, and roof entries.

Model	Description
QM-1-4-10	Single tank ballast w/4" X 10' pipe
QM-2-4-10	Double tank ballast w/4" X 10' pipe
QM-1-2-10	Single tank ballast w/2" X 10' pipe

Custom mast lengths available.

Model	Description
QMII-8	Tank ballast w/1-1/2" X 8' pipe

Qwikmount II – Non-Penetrating Roof Antenna Support

- The Qwikmount II is revolutionary in design. By utilizing water as ballast, the Qwikmount II eliminates the cost and hassle of transporting bricks, sand, or concrete to the roof to ballast a mount. With Qwikmount II, all you need is a hose and a faucet!

The Qwikmount II is the perfect answer when mounting smaller PCS, cellular, broadband wireless and two way antennas on a rooftop. With just one bolt to assemble, the low-cost Qwikmount II is ready to go in minutes.

The Qwikmount II is easy to relocate so your site components can move quickly if your needs change.

Qwikmount II may also be used in groups to form array assemblies.

The Qwikmount is available with standard mast pipe size of 1-1/2" pipe X 5' (standard pipe sizes), with special sizes available on request.

All metal parts are aluminum or hot dip galvanized steel, and all fasteners are stainless steel.

Installation of Pipe Supports - SS Series:

A. Verify that roof surface is smooth and clean to extent needed to receive materials.
B. Review approved final drawings to determine the locations of supports.
C. Clean surfaces to receive supports removing any loose gravel and any foreign matter before setting support 17" circular bases.
D. Accurately locate and align pre-fabricated pipe supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit pipe and/or conduit deflection to L/240, not to exceed 10' (3m) on center. No Isolation pads are required under the 17" circular bases.
E. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under 17" circular bases. Do not adhere to the roof system or 17" circular bases.
F. Insert frame structures into 17" circular bases as indicated in above drawing.
G. Adjust height of each strut or channel and hanger or roller to its required height and tighten with nut, but do not over-tighten. Check each support for equal weight disbursement. Correct if necessary.
H. Repeat until all supports supplied are installed in accordance with approved shop drawings.
I. Remove any unused materials and packaging from job site.

Installation of Pipe Supports – EcoCurb & EcoBloc:

A. Verify that roof surface is smooth and clean to extent needed to receive materials.
B. Review approved final drawings to determine the locations of EcoCurb Supports.
C. Clean surfaces to receive EcoCurb Supports removing any loose gravel and any foreign matter before setting EcoCurb Supports.
D. Accurately locate and align pre-fabricated EcoCurb supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit pipe and/or conduit deflection to L/240, not to exceed 10' (3m) on center. If Isolation pads are required, place under each EcoCurb Support.
E. Should the roofing manufacturer require a separation sheet between the roof and the EcoCurb Support, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under each EcoCurb Support. Do not adhere to the roof system or to EcoCurb Support.
F. Repeat until all supports supplied are installed in accordance with approved shop drawings.
G. Remove any unused materials and packaging from job site.

Installation of Equipment Supports:

A. Verify that roof surface is smooth and clean to extent needed to receive materials.
B. Review approved final drawings to determine the locations of supports.
C. Clean surfaces to receive supports removing any loose gravel and any foreign matter before setting support 17" circular bases.
D. Accurately locate Base Platform in location specified as per approved shop drawings or as required herein and by site conditions. No Isolation pads are required under the 17" circular bases.
E. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under 17" circular bases. Do not adhere to the roof system or 17" circular bases.
F. Insert steel frame structures into 17" circular bases as indicated in above drawing.
G. Adjust height of each support base for equal weight disbursement. Correct if necessary.
H. Repeat until all support bases supplied are installed in accordance with approved shop drawings.
I. Remove any unused materials and packaging from job site.

SECTION 07 72 00 - ROOF ACCESSORIES

SECTION 22 05 29 - HANGERS & SUPPORTS FOR PLUMBING PIPING & EQUIPMENT

SECTION 23 05 29 - HANGERS & SUPPORTS FOR HVAC PIPING & EQUIPMENT

SECTION 26 05 29 - HANGERS & SUPPORTS FOR ELECTRICAL SYSTEMS

SECTION 27 05 28 29 - HANGERS & SUPPORTS FOR COMMUNICATION SYSTEMS

(ROOF PIPE SUPPORT SYSTEMS)
(using 17" circular base)

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. The work of this contract consists of the furnishing of all labor, equipment, materials and devices required in conjunction with the installation of supports for all Mechanical, Electrical and Plumbing piping or conduit, HVAC Air Ducts and HVAC Equipment.

B. Manufacturer must supply a 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight disbursement.

C. Manufacturer must supply Vibration Isolation and Cushion system with a minimum of shock transmission to the roofing surface to allow free movement with no pipe tension or binding.

1.02 RELATED SECTIONS:

A. Division 05 - Metals

05 45 00	Metal Support Assemblies
05 45 13	Mechanical Metal Supports
05 45 16	Electrical Metal Supports
05 45 19	Communications Metal Supports
05 50 00	Metal Fabrication
05 51 00	Metal Stairs
05 52 00	Metal Railings

B. Division 07 - Thermal and Moisture Protection

07 01 70	Operation & Maintenance of Roof Specialties and Accessories
07 06 70	Schedules for Roof Specialties and Accessories
07 72 00	Roof Accessories
07 72 13	Manufactured Curbs
07 72 46	Roof Walkways

C. Division 22 - Plumbing

22 05 29	Hangers & Supports for Plumbing Piping & Equipment
22 05 48	Vibration & Seismic Controls for Plumbing Piping & Equipment
22 11 19	Domestic Water Piping Specialties
22 63 13	Gas Piping for Laboratory and Health Care Facilities

D. Division 23 - HVAC

23 05 29	Hangers & Supports for HVAC Piping & Equipment
23 05 48	Vibration & Seismic Controls for HVAC Piping & Equipment
23 11 23	Facility Natural Gas Piping
23 21 13 23	Aboveground Hydronic Piping

23 22 13	Steam & Condensate Heating Piping
23 23 16	Refrigerant Piping Specialties
23 33 00	Air Duct Specialties
23 56 16	Packaged Solar Heating Equipment
23 83 16	Radiant Heating Hydronic Piping

E. Division 26 - Electrical

26 05 29	Hangers & Supports for Electrical Systems
26 05 36	Cable Trays for Electrical Systems
26 05 48	Vibration & Seismic Controls for Electrical Systems
26 33 16	Battery Racks

F. Division 27 - Communications

27 05 28 29	Hangers & Supports for Communication Systems
27 05 28 36	Cable Trays for Communication Systems
27 05 48	Vibration & Seismic Controls for Communication Systems
27 11 16	Communication Cabinets, Racks, Frames & Enclosures
27 11 23	Communication Cable Management and Ladder Racks
27 53 19	Internal Cellular, Paging & Antenna Systems

G. Division 28 - Electronic Safety and Security

28 05 28 29	Hangers & Supports for Electronic Safety & Security
28 05 28 36	Cable Trays for Electronic Safety & Security

H. Division 33 - Utilities

33 81 16	Antenna Towers

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. A 123-89a Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products.
2. A 153-82 Zinc Coating (Hot-Dip) Steel and Iron Hardware.
3. A 167-92b Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Plate.
4. A 570-92 Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
5. D 256 - Test method for determining the pendulum impact resistance of notched specimens of plastics.
6. D 638 - Test method for tensile properties of plastics.
7. D 695-91 Test method or compressive properties of rigid plastics.
8. D 785 - Test method for Rockwell hardness of plastics and electrical insulating materials.
9. D 790 - Test method for flexural properties of un-reinforced and reinforced plastics and electrical insulating materials.

B. Manufacture's Standardization Society of the Valve and Fittings Industry, Inc. (MSS)

1. SP-58 Pipe Hangers and Supports, Materials, Design and Manufacture.
2. SP-69 Pipe Hangers and Supports, Selection and Application.

C. National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, current edition.

D. Sheet Metal and Air Conditioning Contractor's Association, Inc. (SMACNA): Architectural Sheet Metal Manual, current edition.

1.04 SYSTEM DESCRIPTION:

Design Requirements: Prefabricated, engineered support system designed specifically for use on roofing without adhesive, roof penetrations, flashings or damage to roofing system.

1.05 SUBMITTALS:

A. Submit under provision of Section [01 33 00] [_____].

B. Product Data: Submit manufacturer's product data sheets, including installation instructions for each fabricated unit. Base design must be 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.
C. Shop Drawings: Indicate layout, support components and methods of installation.
D. Samples: If requested, submit sample of 17" circular base, 12 inch long framing members, each support, hanger and fastener.

1.06 QUALITY CONTROL:
The Manufacturer or his representative on request will inspect the completed installation and report in writing that the design requirements meet with the Manufacturer’s approval.

1.07 DELIVERY, STORAGE AND HANDLING:
Deliver, store and handle products under provisions of Section [01 60 00] [_____].

1.08 WARRANTY:
The Product Manufacturer shall provide a one year full system material warranty necessary to cover replacement of all components of the system against defects in manufacturing. The warranty will not include Acts of God, vandalism, neglect, metal finish or improper spacing of equipment which would be a result of improper application.

PART 2 - PRODUCTS

2.01 MANUFACTURER:
The support system shall be manufactured by:
Advanced Support Products, Inc.
P.O. Box 1284
Tomball, Texas 77377
Phone: 281-357-1277
Fax: 281-357-0577
Toll Free: 800-941-5737

2.02 MATERIALS:
A. Base: 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.
B. Base Dimensions: 3"H X 17" in diameter, designed for weight displacement, with molded insert for square tubing and two threaded rod couplings molded in.
C. Frame: Pre-Galvanized Zinc coated 12 ga. channel (ASTM. A653).
D. Hangers: Clevis and/or Band type as per pipe requirements.
E. Accessories: Cadmium plated threaded rods, clamps, nuts, bolts and washers.
F. Rollers: Non-Binding Heavy Duty SBR Rubber.

2:03 RELATED PRODUCTS:
A. Isolation Pads are not required.
B. If required by roofing manufacturer, a separation sheet or pad conforming to the existing roof manufacturer’s system.

2:04 PIPE SUPPORTS:
A. To support conduit or pipe sized up to Ø1/2" use Model # **SS1000B Pipe Support with Strut Bar**. 17" circular base with double sided strut inserted into center cavity. Use strut clamps to secure pipe.

Specifications - 17" Circular Weight Disbursing Base

B. To support conduit or pipe sized up to Ø8" without height adjustment use Model # **SS1000 Pipe Support**. 17" circular base with 12 ga. framing channel, 18"L, attached directly to base using ½" bolts. May use strut clamps as option for securing pipe.

C. To support conduit or pipe sized up to Ø8" when height adjustment is needed use Model # **SS1000A Adjustable Pipe Support**. 17" circular base with 12 ga. framing channel, 18"L, attached to 17" circular base using ½" threaded rods, 12"L, with washers and nuts. Height of channel can be adjusted along the length of the ½" threaded rods. Strut clamps are suggested to hold piping or conduit in place.

D. To support water or gas piping up to Ø8" or when a roller support is needed use Model # **SS1000R Pipe Support with Roller**. 17" circular base with SBR heavy duty rubber roller assembly attached directly to base with ½" bolts.

E. To support water or gas piping up to Ø8" or when a roller support with height adjustment is needed use Model # **SS1000RA Pipe Support with Adjustable Roller.** 17" circular base with SBR heavy duty rubber roller assembly attached to 17" circular base using ½" threaded rods, 12"L, with washers and nuts. Height of roller assembly can be adjusted along the length of the ½" threaded rods.

F. To support all type of piping in multiple runs use **Cross Brace Bridge** Model **SS2000/36, SS2000/48 or SS2000/60**. **Cross Brace Bridge** is made of two 17" circular bases and framing channel (36", 48" or 60"L) attached directly to the bases using ½" bolts **OR** attach to bases using ½" threaded rods, 12"L, with washers and nuts. Height of framing channel can be adjusted along the length of the ½" threaded rod. **Cross Brace Bridge** is to be used with strut clamps or roller accessories.

G. To support conduit or piping up to Ø4" when height adjustment or pipe suspension is needed use Model # **SS1000H Hanging Pipe Support** for single pipe or **SS1000T Hanging Pipe Support Tee** for two pipes. **SS1000H** is one 17" circular base with 12 ga. framing channel, 18"L, attached to base using ½" threaded rods, 12"L, with one hanger attached to channel using ½" threaded rod to suspend piping at heights beginning at 3". Height of channel can be adjusted along the length of the ½" threaded rods. Height of hanger can be adjusted along the length of the ½" threaded rod. **SS1000T** is one 17" circular base with 12 ga. framing channel formed to make a "T" shape with two hangers attached to channel using ½" threaded rods on each side of the "T" to suspend piping at heights beginning at 3". Height of hanger can be adjusted along the length of the ½" threaded rods.

H. To support multiple pipe runs, piping up to Ø12" when height adjustment or pipe suspension is needed use Model # **SS4000P, SS6000P** or **SS8000P Adjustable Support Bridge. SS4000P Adjustable Suport Bridge** is made of four (4) 17" circular bases and 12ga. framing channel formed to make one "H" shaped support with crossbar. **SS6000P Adjustable Suport Bridge** is made of six (6) 17" circular bases and 12ga. framing channel formed to make two "H" shaped supports with crossbar. **SS8000P Adjustable Suport Bridge** is made of eight (8) 17" circular bases and 12ga. framing channel formed to make three "H" shaped supports with crossbar. Crossbar height is adjustable and offered in 18", 24", 36", and 48" lengths. Use **Adjustable Support Bridge** with strut clamps or roller accessories or use optional hanger supports to suspend water or gas piping at various heights. Optional hanger supports attached to support frame using ½" threaded rods. Hangers offer complete height adjustments along the length of ½" threaded rods.

I. To support HVAC Duct use Model # **SS2000D Duct Support**. **SS2000D** is two 17" circular bases with 12 ga. framing channel formed to make an "H" shaped support. Framing channel is adjustable in both height and width.

J. To support light weight HVAC Equipment use Model **#SS1000EC Equipment Support Corner or SS1000E Equipment Support Stand**. **SS1000EC** is one 17" circular base with a 6"X6" Steel Support Corner Bracket, Hot-Dip Galvanized welded to 1-7/8" X 1-7/8" 12 gauge square tubing

supported by 1-5/8" X 1-5/8" 12 gauge square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized. **SS1000E** is one 17" circular base with a 6"X6" Steel Support Bracket, Hot-Dip Galvanized welded to 1-7/8" X 1-7/8" 12 gauge square tubing supported by 1-5/8" X 1-5/8" 12 gauge square tubing available in Pre-Galvanized Zinc coated or Hot-Dip Galvanized.

K. To support heavier HVAC equipment use equipment platform designed by manufacturer to support the weight of the equipment and load requirements. Equipment platform shall consist of (a) 17" circular bases supporting a structural steel frame **OR** (b) galvanized steel plates, with four holes for approved anchoring per engineering data, supporting a structural steel frame.

PART 3 - EXECUTION Section 01 70 00

3.01 PREPARATION:

A. Verify that roof surface is smooth and clean to extent needed to receive materials.

B. Review approved final drawings to determine the locations of supports.

C. Clean surfaces to receive supports removing any loose gravel and any foreign matter.

D. Supports can be placed on completed gravel roof systems. Sweep any loose gravel before setting support 17" circular bases.

3.02 INSTALLATION:

A. Install support systems in accordance with manufacturer's instructions and approved shop drawings.

B. Accurately locate and align pre-fabricated pipe supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit pipe and/or conduit deflection to L/240, not to exceed 10' (3m) on center. No Isolation pads are required under the 17" circular bases.

C. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under 17" circular bases. Do not adhere to the roof system or 17" circular bases.

D. If required, insert frame structures into 17" circular bases as indicated by manufacturer's instructions.

E. Adjust height of each strut or channel and hanger or roller to its required height and tighten with nut, but do not over-tighten. Check each support for equal weight disbursement. Correct if necessary.

E. Remove any unused materials and packaging from job site.

END OF SECTION

SECTION 07 72 00 - ROOF ACCESSORIES

SECTION 22 05 29 - HANGERS & SUPPORTS FOR PLUMBING PIPING & EQUIPMENT

SECTION 23 05 29 - HANGERS & SUPPORTS FOR HVAC PIPING & EQUIPMENT

SECTION 26 05 29 - HANGERS & SUPPORTS FOR ELECTRICAL SYSTEMS

SECTION 27 05 28 29 - HANGERS & SUPPORTS FOR COMMUNICATION SYSTEMS

(ROOF PIPE SUPPORT SYSTEMS)
(using rubber curb)

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. The work of this contract consists of the furnishing of all labor, equipment, materials and devices required in conjunction with the installation of supports for all Mechanical, Electrical and Plumbing piping or conduit, HVAC Air Ducts and HVAC Equipment.

B. Manufacturer must supply 100% molded virgin rubber pipe curb. Curb made from rubber crumb and binder is **not** considered an equal or allowed as a substitute.

C. Manufacturer must supply Vibration Isolation and Cushion system with a minimum of shock transmission to the roofing surface to allow free movement with no pipe tension or binding.

1.02 RELATED SECTIONS:

A. Division 05 - Metals

05 45 00	Metal Support Assemblies
05 45 13	Mechanical Metal Supports
05 45 16	Electrical Metal Supports
05 45 19	Communications Metal Supports
05 50 00	Metal Fabrication
05 51 00	Metal Stairs
05 52 00	Metal Railings

B. Division 07 - Thermal and Moisture Protection

07 01 70	Operation & Maintenance of Roof Specialties and Accessories
07 06 70	Schedules for Roof Specialties and Accessories
07 72 00	Roof Accessories
07 72 13	Manufactured Curbs
07 72 46	Roof Walkways

C. Division 22 - Plumbing

22 05 29	Hangers & Supports for Plumbing Piping & Equipment
22 05 48	Vibration & Seismic Controls for Plumbing Piping & Equipment
22 11 19	Domestic Water Piping Specialties
22 63 13	Gas Piping for Laboratory and Health Care Facilities

D. Division 23 - HVAC

23 05 29	Hangers & Supports for HVAC Piping & Equipment
23 05 48	Vibration & Seismic Controls for HVAC Piping & Equipment
23 11 23	Facility Natural Gas Piping

23 21 13 23	Aboveground Hydronic Piping
23 22 13	Steam & Condensate Heating Piping
23 23 16	Refrigerant Piping Specialties
23 33 00	Air Duct Specialties
23 56 16	Packaged Solar Heating Equipment
23 83 16	Radiant Heating Hydronic Piping

E. Division 26 - Electrical

26 05 29	Hangers & Supports for Electrical Systems
26 05 36	Cable Trays for Electrical Systems
26 05 48	Vibration & Seismic Controls for Electrical Systems
26 33 16	Battery Racks

F. Division 27 - Communications

27 05 28 29	Hangers & Supports for Communication Systems
27 05 28 36	Cable Trays for Communication Systems
27 05 48	Vibration & Seismic Controls for Communication Systems
27 11 16	Communication Cabinets, Racks, Frames & Enclosures
27 11 23	Communication Cable Management and Ladder Racks
27 53 19	Internal Cellular, Paging & Antenna Systems

G. Division 28 - Electronic Safety and Security

28 05 28 29	Hangers & Supports for Electronic Safety & Security
28 05 28 36	Cable Trays for Electronic Safety & Security

H. Division 33 - Utilities

33 81 16	Antenna Towers

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):
1. A 123-89a Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products.
2. A 153-82 Zinc Coating (Hot-Dip) Steel and Iron Hardware.
3. A 167-92b Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Plate.
4. A 570-92 Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
5. D 2240-91 Rubber Property - Durometer Hardness.

B. Manufacturer's Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
1. SP-58 Pipe Hangers and Supports, Materials, Design and Manufacture.
2. SP-69 Pipe Hangers and Supports, Selection and Application.

C. National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, current edition.

D. Sheet Metal and Air Conditioning Contractor's Association, Inc. (SMACNA): Architectural Sheet Metal Manual, current edition.

1.04 SYSTEM DESCRIPTION:

Design Requirements: Prefabricated, engineered support system designed specifically for use on roofing without adhesive, roof penetrations, flashings or damage to roofing system.

1.05 SUBMITTALS:

A. Submit under provision of Section [01 33 00] [_____].

B. Product Data: Submit manufacturer's product data sheets, including installation instructions for each fabricated unit. Curb design must be molded from virgin rubber.

C. Shop Drawings: Indicate layout, support components and methods of installation.

D. Samples: If requested, submit sample of rubber curb, 12 inch long framing members, each support, hanger and fastener.

1.06 QUALITY CONTROL:
The Manufacturer or his representative on request will inspect the completed installation and report in writing that the design requirements meet with the Manufacturer's approval.

1.07 DELIVERY, STORAGE AND HANDLING:
Deliver, store and handle products under provisions of Section [01 60 00] [_____].

1.08 WARRANTY:
The Product Manufacturer shall provide a one-year full system material warranty necessary to cover replacement of all components of the system against defects in manufacturing. The warranty will not include Acts of God, vandalism, neglect, metal finish or improper spacing of equipment which would be a result of improper application.

PART 2 - PRODUCTS

2.01 MANUFACTURER:
The support system shall be manufactured by:
Advanced Support Products, Inc.
P.O. Box 1284
Tomball, Texas 77377
Phone: 281-357-1277
Fax: 281-357-0577
Toll Free: 800-941-5737

2.02 MATERIALS:
A. Curb: Molded Virgin Rubber.
B. Curb Dimensions: 4" high x 6" wide in lengths of, 6", 9" or 13".
C. Frame: Pre-Galvanized Zinc coated 12 ga. channel (ASTM. A653).
D. Hangers: Clevis and/or Band type as per pipe requirements.
E. Accessories: Cadmium plated threaded rods, clamps, nuts, bolts and washers.
F. Rollers: Non-Binding Heavy Duty SBR Rubber.

2:03 RELATED PRODUCTS:
A. Isolation Pads are not required.
B. If required by roofing manufacturer, a separation sheet or pad conforming to the existing roof manufacturers system.

2:04 PIPE SUPPORTS:
A. To support conduit or pipe sized up to Ø4" without height adjustment use **EcoCurb** Model # **REC6** (6"L), **REC9** (9"L) or **REC13** (13"L) - Molded Virgin Rubber curb. May attach pipe clamps directly to curb as option for securing conduit or pipe.
B. To support piping up to Ø8" without height adjustment use **EcoCurb** Model # **REC9S** (9"L), **REC13S** (13"L), **REC1609S** (9"L curb with 16"L strut) and **REC2413S** (13"L curb with 24"L strut). Curb is a Model **REC** with 12 ga. framing channel attached directly to curb with ½" bolts. May use strut clamps as option for securing pipe.
C. To support piping up to Ø8" when height adjustment is needed use **EcoCurb** Model # **REC9A** (9"L) and **REC13A** (13"L). Curb is a Model **REC** with 12ga. framing channel attached to curb using ½" threaded rods, 12"L, with washers and nuts. Height of channel can be adjusted along the length of the ½" threaded rods. Strut clamps are suggested to hold piping or conduit in place.

D. To support water or gas piping up to Ø8" or when a roller support is needed use **EcoCurb** Model # **REC9R** (9"L) and **REC13R** (13"L). Curb is a Model **REC** with SBR heavy-duty rubber roller assembly attached directly to curb with ½" bolts.

E. To support water or gas piping up to Ø8" or when a roller support with height adjustment is needed use **EcoCurb** Model # **REC9RA** (9"L) and **REC13RA** (13"L). Curb is a Model **REC** with SBR heavy-duty rubber roller assembly attached to curb using ½" threaded rods, 12"L, with washers and nuts. Height of roller assembly can be adjusted along the length of the ½" threaded rods.

F. To support all type of piping in multiple runs or piping up to Ø12" use **EcoCurb Cross Brace Bridge** Model # **RCB2409**, **3609, 4809** or **RCB3613, 4813, 6013. Cross Brace Bridge** is made of two **EcoCurbs** Model **REC** (9" or 13") and framing channel (24", 36", 48" or 60"L) attached directly to the Curbs using ½" bolts. **Cross Brace Bridge** is to be used with strut clamps or roller accessories.

G. To support multiple pipe runs, piping up to Ø12" when height adjustment or pipe suspension is needed use **EcoCurb Adjustable Support Bridge** Model # **RSB1836A, RSB2436A, RSB3636A** or **RSB4836A. Adjustable Support Bridge** is made of four (4) **EcoCurbs** Model **REC** and 12ga. framing channel formed to make an "H" shaped support with one crossbar. Crossbar height is adjustable and offered in 18", 24", 36", and 48" lengths. Use **Adjustable Support Bridge** with strut clamps or roller assembly or use optional hanger supports to suspend water or gas piping at various heights. Optional hanger supports attached to support frame using ½" threaded rods. Hangers offer complete height adjustments along the length of ½" threaded rods.

PART 3 - EXECUTION Section 01 70 00

3.01 PREPARATION:

A. Verify that roof surface is smooth and clean to extent needed to receive materials.

B. Review approved final drawings to determine the locations of supports.

C. Clean surfaces to receive supports removing any loose gravel and any foreign matter.

D. Supports can be placed on completed gravel roof systems. Sweep any loose gravel before setting support curbs.

3.02 INSTALLATION:

A. Install support systems in accordance with manufacturer's instructions and approved shop drawings.

B. Accurately locate and align pre-fabricated pipe supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit pipe and/or conduit deflection to L/240, not to exceed 10' (3m) on center. No Isolation pads are required under the support curbs.

C. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under curbs. Do not adhere to the roof system or curb.

D. Adjust height of each strut or channel and hanger or roller to its required height and tighten with nut, but do not over-tighten. Check each support for equal weight disbursement. Correct if necessary.

E. Remove any unused materials and packaging from job site.

END OF SECTION

Multi-Purpose Polypropylene Support Base Testing

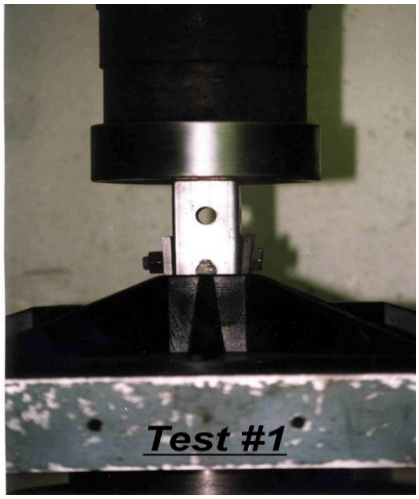
HTS, Inc. Consultants
416 Pickering Street, Houston, Texas 77091
March 18, 1997

Presented here is a report of properties and performance evaluations related to the multi-purpose polypropylene support base.

A limited number of material conformance tests and a series of load tests with various types of applications were completed.

Material conformance tests were conducted with an Instron, Model 4467 computerized system and the load testing was conducted with a Forney, Model QC400 compression machine. All testing equipment is calibrated annually and traceable to national standards.

The test data and related information is included in this report and can serve as valuable

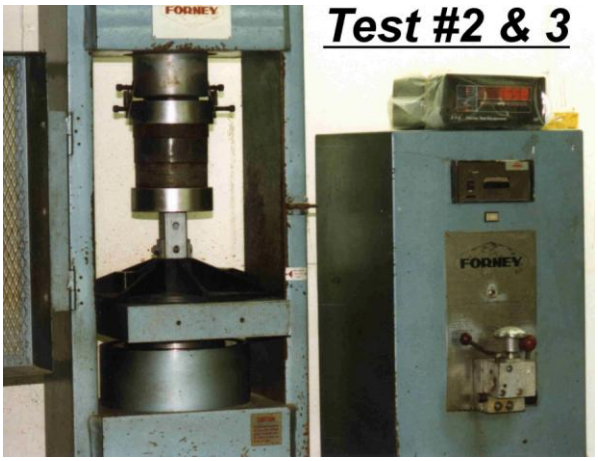


Load Test #1

The application was a 1-5/8” square tubing, 3” long inserted into the support column and resting on a ¼” square washer on the bottom. A 1-7/8” square tubing was placed over the 1-5/8” tubing that served as a collar resting on top of the support column. Two ¼” square washers were placed on two sides of the tubing and also resting on top of the support column. A ½” bolt was inserted through the holes of the tubing and washers to hold the assembly together. A maximum load of 27,791 lbs. was attained. In our observation, deformation occurred in the bolt holes of the tubing.

With a safety factor of 2 applied to this application, the base will adequately support a load of 13,500 lbs.

Testing – 17” Circular Base



Load Test #2

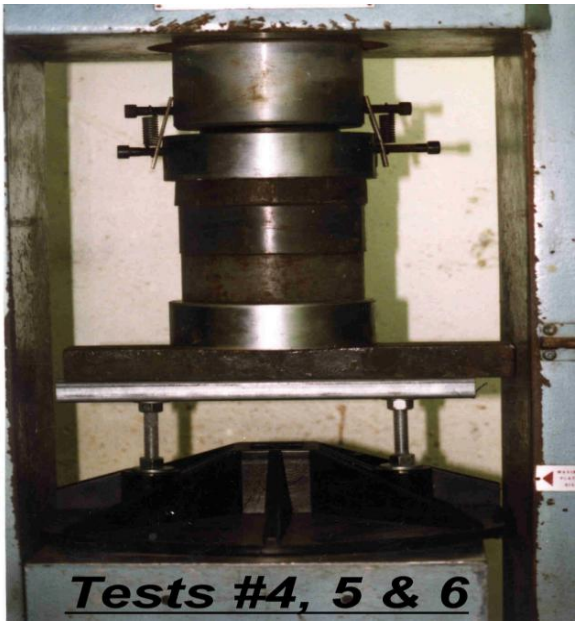
The application was a 1-5/8” square tubing inserted into the support column. A 1-7/8” square tubing was placed over the 1-5/8” tubing that served as a collar resting on top of the support column. Two ¼” square washers were placed on two sides of the tubing and also rested on top of the support columns. A ½” bolt was inserted through the holes of the bottom of the support column. It’s position was ½” from the bottom. A maximum load of 15,555 lbs. was attained. At maximum load, the tubing and washers were being wedged into the support column.

Load Test #3

The application was a 15/8” square tubing inserted into the support column. A 1-7/8” square tubing was placed over the 1-5/8” tubing that served as a collar resting on top of the support column. Two ¼” square washers were placed on two sides of the tubing and also rested on top of the support column. A ½” bolt was inserted through the holes of the tubing and washers to hold the assembly together. The 1-5/8” tubing did not rest on the bottom of the supporting column. It’s position was ½” from the bottom. A maximum load of 14,551 lbs. was attained. At maximum load, the tubing and washers were being wedged in the support columns.

With a safety factor of 2 applied to the average of tests #2 & 3 of this application, the base will adequately support a load of 7500 lbs.

Testing – 17” Circular Base



Load Test #4 - Model SS1000 Bracket Support

This application represents two ½” all thread bolts supporting a 1-3/4” wide 1/8” thick channel bracket. The ½” bolts have a width of 8” and a height of 2” between nuts. The bottom nuts rests on a 1-1/4” diameter washer that rests on a 1-1/4” diameter washer that rests on the anchor posts. Load was applied to the top of the all thread bolts. A maximum load of 21,890 lbs. was attained at failure. Failure occurred in all thread bolts due to bending. There was no puncture of the anchor through the base.

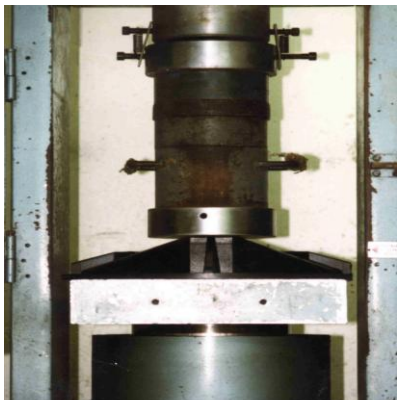
Load Test #5 - Model SS1000 Bracket Support

This application represents two ½” all thread bolts supporting a 1-3/4” wide 1/8” thick channel bracket. The ½” bolts have a width of 8” and a height of 1-3/4” between nuts. The bottom nuts rest on a 1-1/4” diameter washer that rests on the anchor post. Load was applied to the top of the all thread bolts. A maximum load of 22,946 lbs. was attained at failure. Failure occurred in the all thread bolts due to bending. There was no puncture of the anchor through the base.

Load Test #6 - Model SS1000 Bracket Support

This application represents two ½” all thread bolts supporting a 1-3/4” wide 1/8” thick channel bracket. The ½” bolts have a width of 8” and a height of 1-3/8” between the nuts. The bottom nuts rest on a 1-1/4” diameter washer that rests on the anchor posts. Load was applied to the top of the all thread bolts. A maximum load of 25,911 lbs. was attained at failure. Failure occurred in the all threads due to bending. There was no puncture of the anchor through the base.

Testing – 17” Circular Base



Load Test #7

In this application, the load was transferred over the entire surface area of the center support column. A load of 43,052 lbs. was attained after 18 minutes, but failure did not actually occur at this time. The column gradually deforming and the loading head was beginning to transfer load to the gussets, therefore maximum load was assumed for the center support column.

If this application is utilized, a safety factor of 20,000 lbs. can be allowed.

Load Test #8

This application consists of a 1-5/8” square tubing inserted into the center support column with a 1/8” thick square tubing collar resting on top of the center support column. The collar was secured with a ½” bolt and the 1-5/8” square tubing was ¼” from the bottom of the center column. A maximum load of 9,248 lbs. was attained. At maximum load, the tube and collar began to wedge into the support column.

With this application, a safety factor of 4500 lbs. can be allowed.

Testing – 17” Circular Base

Typical Roof Loads for Pipe Supports

Pipe Size	# of Pipes	Contents of Pipe	Spacing of Pipes		
			6 feet	8 feet	10 feet
4 inch pipe	1	Gas (lbs)	111	132	156
		(psi)	0.24	0.29	0.34
		Water (lbs)	144	176	206
		(psi)	0.32	0.39	0.45
	2	Gas (lbs)	180	222	270
		(psi)	0.40	0.49	0.59
		Water (lbs)	264	310	237
		(psi)	0.58	0.68	0.52
	3	Gas (lbs)	249	312	384
		(psi)	0.55	0.69	0.85
		Water (lbs)	348	444	534
		(psi)	0.77	0.98	1.18
6 inch pipe	1	Gas (lbs)	156	196	236
		(psi)	0.34	0.43	0.52
		Water (lbs)	236	296	356
		(psi)	0.52	0.65	0.78
	2	Gas (lbs)	270	350	430
		(psi)	0.59	0.77	0.95
		Water (lbs)	430	550	670
		(psi)	0.95	1.21	1.48
	3	Gas (lbs)	384	504	624
		(psi)	0.85	1.11	1.37
		Water (lbs)	624	804	984
		(psi)	1.37	1.77	2.17
8 inch pipe	1	Gas (lbs)	228	288	348
		(psi)	0.50	0.63	0.77
		Water (lbs)	358	458	558
		(psi)	0.79	1.01	1.23
	2	Gas (lbs)	414	534	654
		(psi)	0.91	1.18	1.44
		Water (lbs)	674	874	1074
		(psi)	1.48	1.93	2.37
10 inch pipe	1	Gas (lbs)	302	382	472
		(psi)	0.67	0.84	1.04
		Water (lbs)	512	662	812
		(psi)	1.13	1.46	1.79
	2	Gas (lbs)	562	722	902
		(psi)	1.24	1.59	1.99
		Water (lbs)	982	1,282	1,582
		(psi)	2.16	2.82	3.48
12 inch pipe	1	Gas (lbs)	362	462	562
		(psi)	0.80	1.02	1.24
		Water (lbs)	652	852	1,052
		(psi)	1.44	1.88	2.32

Nominal Base Dimensions: 17 inches diameter (227 square inches)
Base Weight: 5 pounds each, 20 pounds per 4 base assembly
Frame weight: 16 pounds
Hanger Weight: 4 pounds each (4 and 6 in.); 16 pounds each (8 in.); 20 pounds each est. (10 & 12 in.)

Moreno Engineering, Inc.

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Engineering Calculations for Pipe Support Systems
as manufactured by Advanced Support Products, Inc.
Utilizing 17" Circular Base
August 12, 2003
(fig. 1) Pipe Support Design Uplift Resistance
(figs. 2, 3 & 4) Typical Roof Loads Due to Gravity Bearing Stresses
(Minimum, Medium, Maximum Hanger Assemblies)
(fig. 5) Product Information – 17" Circular Bases

After carefully reviewing the above mentioned products, we have concluded that the products as stipulated in this report meet or exceed the roof type pipe supports for similar applications.
The data utilized for these calculations was obtained from Uni-strut for the structural assemblies and from Grinnell for the pipe hangers. The information for the 17" circular injected molding plastic base was obtained from Advanced Support Products, Inc. product data.

The calculations performed are limited and only indicate the static loads that would be exerted on a roof deck by the support assemblies including standard sections of single or multiple lengths of pipe conveying natural gas or water.

The piping and hanger assemblies mentioned herein are considered "dead" loads and should be taken into account during the structural design of the roof system. The hanger assembly loads in the attached tables are intended to be used by the structural designer and provide the information required to properly evaluate the complete roof system.

The products and their characteristics as noted herein were tested by Advanced Support Products, Inc. and represent the basis for our calculations. Roof membrane system analysis as well as long term performance of the products was not part of the calculation process. The following assumptions were taken into account for the calculations:

► Placement of load on pipe supports was assumed to be symmetrical.

►Performance of the products at other than static loading was not part of the calculation process.

►Hanger assemblies and piping were placed on a horizontal surface and pipe supports are normal to piping.

Conclusions:
Based on our inspection and analysis of the product design, the load capacity values at each point of support of the pipe hanger assemblies, including the weight of piping are all less than the maximum allowable stresses for typical roof deck insulation types currently in use (5 psi maximum). Therefore, the Pipe Support Systems utilizing 17" circular bases as manufactured by Advanced Support Products, Inc. meet Factory Mutual Research Corporation's recommendation stipulating that the design uplift resistance for an adhered base should not exceed half of the ultimate design uplift resistance of the roof cover system. The uplift resistance of any roof system is therefore dependent on the uplift rating of the roof cover system.

Testing – 17” Circular Base

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(fig. 1) Pipe Support Design Uplift Resistance

Advanced Support Products 17" CIRCULAR BASE UPLIFT RESISTANCE					
BASE SIZE (INCHES)	BASE AREA (SQ.IN.)		FM WIND UPLIFT RATING (PSF) **		
		60	90	150	180
12 x 12 (ref.)	144	30	45	75	90
17" diameter	227	47	71	118	142
** FACTORY MUTUAL RATINGS (LBS PER SQ. FT.)					

(fig. 2)Typical Roof Loads Due to Gravity Bearing Stresses
(Minimum Pipe Hanger Assemblies)
(4 Base system)

17" CIR. BASE AREA	908 sq.in.	
17" CIR. BASE WT	20.0 lbs	
FRAME WT.	29.0 lbs	
HANGER WT.	8.0 lbs	
ASSEMBLY WT.	57.0 lbs	1 pipe
	86.0 lbs	2 pipe

Pipe Dia.	Qty.	Pipe Contents	Pipe Support Spacing		
			6 Feet	8 Feet	10 Feet
4 inch	1	water	155.0 lbs 0.17 psi	187.0 lbs 0.21 psi	217.0 lbs 0.24 psi
	2	water	282.0 lbs 0.31 psi	346.0 lbs 0.38 psi	406.0 lbs 0.45 psi
6 inch	1	water	247.0 lbs 0.27 psi	307.0 lbs 0.34 psi	367.0 lbs 0.40 psi
	2	water	466.0 lbs 0.51 psi	586.0 lbs 0.65 psi	706.0 lbs 0.78 psi

The bearing stresses indicated above reflect utilization of an adjustable support assembly consisting of 2 each Cross Brace Bridges, 2 each Channel Legs and 2 each Adjustable Cross Bars

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(fig. 3)Typical Roof Loads Due to Gravity Bearing Stresses
(Minimum Pipe Hanger Assemblies)
(4 Base system)

17" CIR. BASE AREA	908 sq.in.	
17" CIR. BASE WT	20.0 lbs	
FRAME WT.	29.0 lbs	
HANGER WT.	8.0 lbs	
ASSEMBLY WT.	57.0 lbs	1 pipe
	86.0 lbs	2 pipe
	112.0 lbs	3 pipe

Pipe Dia.	Qty.	Pipe Contents	Pipe Support Spacing		
			6 Feet	8 Feet	10 Feet
4 inch	1	gas	122 lbs	143 lbs	167 lbs
			0.13 psi	0.16 psi	0.18 psi
		water	155 lbs	187 lbs	217 lbs
			0.17 psi	0.21 psi	0.24 psi
	2	gas	216 lbs	258 lbs	306 lbs
			0.24 psi	0.28 psi	0.34 psi
		water	282 lbs	346 lbs	406 lbs
			0.31 psi	0.38 psi	0.45 psi
	3	gas	307 lbs	370 lbs	442 lbs
			0.34 psi	0.41 psi	0.49 psi
		water	406 lbs	502 lbs	592 lbs
			0.45 psi	0.55 psi	0.65 psi
6 inch	1	gas	167 lbs	207 lbs	247 lbs
			0.18 psi	0.23 psi	0.27 psi
		water	247 lbs	307 lbs	367 lbs
			0.27 psi	0.34 psi	0.40 psi
	2	gas	306 lbs	386 lbs	466 lbs
			0.34 psi	0.43 psi	0.51 psi
		water	466 lbs	586 lbs	706 lbs
			0.51 psi	0.65 psi	0.78 psi
	3	gas	442 lbs	562 lbs	682 lbs
			0.49 psi	0.62 psi	0.75 psi
		water	682 lbs	862 lbs	1042 lbs
			0.75 psi	0.95 psi	1.15 psi

The bearing stresses indicated above reflect utilization of an adjustable support bridge assembly consisting of 2 each Cross Brace Bridges, 2 each Channel Legs and 2 each Adjustable Cross Bars

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(fig. 4)Typical Roof Loads Due to Gravity Bearing Stresses
(Maximum Pipe Hanger Assemblies)
(4 Base system)

17" CIR. BASE AREA	908 sq.in.	ASSEMBLY WT.	57.0 lbs	1 pipe
17" CIR. BASE WT	20.0 lbs		86.0 lbs	2 pipe
FRAME WT.	29.0 lbs		112.0 lbs	3 pipe
HANGER WT.	8.0 lbs			

Pipe Dia.	Qty.	Pipe Contents	Pipe Support Spacing		
			6 Feet	8 Feet	10 Feet
4 inch	1	gas	122 lbs	143 lbs	167 lbs
			0.13 psi	0.16 psi	0.18 psi
		water	155 lbs	187 lbs	217 lbs
			0.17 psi	0.21 psi	0.24 psi
	2	gas	216 lbs	258 lbs	306 lbs
			0.24 psi	0.28 psi	0.34 psi
		water	282 lbs	346 lbs	406 lbs
			0.31 psi	0.38 psi	0.45 psi
	3	gas	307 lbs	370 lbs	442 lbs
			0.34 psi	0.41 psi	0.49 psi
		water	406 lbs	502 lbs	592 lbs
			0.45 psi	0.55 psi	0.65 psi
6 inch	1	gas	167 lbs	207 lbs	247 lbs
			0.18 psi	0.23 psi	0.27 psi
		water	247 lbs	307 lbs	367 lbs
			0.27 psi	0.34 psi	0.40 psi
	2	gas	306 lbs	386 lbs	466 lbs
			0.34 psi	0.43 psi	0.51 psi
		water	466 lbs	586 lbs	706 lbs
			0.51 psi	0.65 psi	0.78 psi
	3	gas	442 lbs	562 lbs	682 lbs
			0.49 psi	0.62 psi	0.75 psi
		water	682 lbs	862 lbs	1042 lbs
			0.75 psi	0.95 psi	1.15 psi
8 inch	1	gas	227 lbs	287 lbs	347 lbs
			0.25 psi	0.32 psi	0.38 psi
		water	357 lbs	457 lbs	557 lbs
			0.39 psi	0.50 psi	0.61 psi
	2	gas	426 lbs	546 lbs	666 lbs
			0.47 psi	0.60 psi	0.73 psi
		water	686 lbs	886 lbs	1086 lbs
			0.76 psi	0.98 psi	1.20 psi

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10 inch	1	gas	297 lbs	377 lbs	467 lbs
			0.33 psi	0.42 psi	0.51 psi
		water	507 lbs	657 lbs	807 lbs
			0.56 psi	0.72 psi	0.89 psi
	2	gas	566 lbs	726 lbs	906 lbs
			0.62 psi	0.80 psi	1.00 psi
		water	986 lbs	1286 lbs	1586 lbs
			1.09 psi	1.42 psi	1.75 psi
12 inch	1	gas	357 lbs	457 lbs	557 lbs
			0.39 psi	0.50 psi	0.61 psi
		water	647 lbs	847 lbs	1047 lbs
			0.71 psi	0.93 psi	1.15 psi

The bearing stresses indicated above reflect utilization of an adjustable support bridge consisting Of 2 each Cross Brace Bridges, 2 each channel legs and 2 each Adjustable Cross Bars

(fig. 5) Product Information – 17” Circular Bases

Standard Base	Size (Inches)	Weight (lbs)	Area (Sq. In.)
	17” Diameter	7 lbs.	227 sq. in.
BASE AREA PER SUPPORT ASSEMBLY MODEL SS1000	1 Base	7 lbs.	227 sq. in.
BASE AREA PER SUPPORT ASSEMBLY MODEL SS4000	4 Bases	28 lbs.	908 sq. in.
BASE AREA PER SUPPORT ASSEMBLY MODEL SS6000	6 Bases	42 lbs.	1,362 sq. in.
BASE AREA PER SUPPORT ASSEMBLY MODEL SS8000	8 Bases	56 lbs.	1,816 sq. in.

Results of Friction Coefficient Test

March 8, 2000
Russ Engineering Group, Inc.
7600 GSRI Avenue
Baton Rouge, La. 70820

Eight (8) base assemblies were tested for coefficient of static friction. The tests were performed by Professional Service Industries, Inc. in their laboratory in Pittsburgh, Pa. Three configurations were tested on four different surfaces.

The three assemblies were:

- HDPE Base
- HPDE Base on Rubberized Bearing Pad (Epoxied to the base)
- HPDE Base on Rubberized Bearing Pad (Non-Epoxied)

The four surfaces were:

- Dry Concrete
- Wet Concrete
- Dry Rubber Membrane
- Wet Rubber Membrane

A fifty (50) pound weight was placed on the center of the base assembly. A Chantillon Digital Force Gauge, Model #DRC 100, was used to pull the base. The horizontal force required to put the base into motion was then recorded. The coefficient of static friction is simply the horizontal force in pound divided by 50 pounds.

The results of the above test are tabulated as follows:

HDPE Base			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Concrete	32.2	0.64
2	Dry Concrete	30.8	0.62
3	Dry Concrete	30.9	0.62
4	Dry Concrete	29.1	0.58
5	Dry Concrete	29.3	0.59
Average		30.5	0.61
HDPE Base/Rubberized Pad (Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Concrete	51.4	1.03
2	Dry Concrete	49.8	1.00
3	Dry Concrete	50.5	1.01
4	Dry Concrete	52.6	1.05
5	Dry Concrete	50.6	1.01
Average		51.0	1.02
HDPE Base/Rubberized Pad (Non-Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Concrete	37.7	0.75
2	Dry Concrete	38.4	0.77

3	Dry Concrete	39.3	0.79
4	Dry Concrete	38.1	0.76
5	Dry Concrete	37.5	0.75
Average		38.2	0.76

HDPE Base

Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Concrete	30.3	0.61
2	Wet Concrete	28.3	0.57
3	Wet Concrete	26.6	0.53
4	Wet Concrete	30.0	0.60
5	Wet Concrete	26.7	0.53
Average		28.4	0.57
HDPE Base/Rubberized Bearing Pad (Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Concrete	34.8	.070
2	Wet Concrete	36.3	0.73
3	Wet Concrete	38.1	0.76
4	Wet Concrete	37.5	0.75
5	Wet Concrete	38.3	0.77
Average		37.0	0.74
HDPE Base/Rubberized Bearing Pad (Non-Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Concrete	36.7	0.73
2	Wet Concrete	38.2	0.76
3	Wet Concrete	38.3	0.77
4	Wet Concrete	39.4	0.79
5	Wet Concrete	39.1	0.78
Average		38.3	0.77

HDPE Base

Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Rubber	52.2	1.04
2	Dry Rubber	52.8	1.06
3	Dry Rubber	50.6	1.01
4	Dry Rubber	51.1	1.02
5	Dry Rubber	52.1	1.04
Average		51.8	1.04
HDPE Base/Rubberized Bearing Pad (Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Rubber	46.9	0.94
2	Dry Rubber	43.4	0.87
3	Dry Rubber	43.9	0.88
4	Dry Rubber	43.2	.086
5	Dry Rubber	43.5	0.87
Average		44.2	0.88

Testing – 17" Circular Base

HDPE Base/Rubberized Bearing Pad (Non-Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Dry Rubber	36.5	0.73
2	Dry Rubber	40.4	0.81
3	Dry Rubber	37.8	0.76
4	Dry Rubber	41.6	0.83
5	Dry Rubber	39.4	0.79
Average		39.1	0.78

HDPE Base

Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Rubber	35.5	0.71
2	Wet Rubber	37.5	0.75
3	Wet Rubber	38.2	0.76
4	Wet Rubber	35.1	0.70
5	Wet Rubber	34.4	0.69
Average		36.1	0.72
HDPE Base/Rubberized Bearing Pad (Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Rubber	35.7	0.71
2	Wet Rubber	34.1	0.68
3	Wet Rubber	33.4	0.67
4	Wet Rubber	33.8	0.68
5	Wet Rubber	34.1	0.68
Average		34.2	0.68
HDPE Base/Rubberized Bearing Pad (Non-Epoxied)			
Test No.	Surface Condition	Force Applied	Coefficient of Friction
1	Wet Rubber	37.4	0.75
2	Wet Rubber	37.8	0.76
3	Wet Rubber	38.7	0.77
4	Wet Rubber	38.3	0.77
5	Wet Rubber	37.3	0.75
Average		37.9	0.76

From these results, it is clear that a coefficient of static friction of .053 is conservative. The lowest individual reading of any of the 60 test pulls has a coefficient of .053. This is in the case of a bare HDPE base on wet concrete. It is the understanding of this engineering firm that the bare base is never in contact with the roof. A bearing pad is always utilized.

The highest average reading for a bare HDPE Base with Rubberized Epoxied Bearing Pad was 1.02 on dry concrete. The lowest average reading was .076 on wet rubber. This assembly was very consistent for all surfaces.

Applying epoxy to the pad did not improve the friction factor for all of the utilizations that the product is likely to encounter. It is therefore recommended that the pad not be epoxied to the base. This is the typical application.

Using a coefficient of static friction of .053 is conservative. Using a coefficient of .070 is recommended.

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Limited Engineering Calculations for Adjustable Support Bridge Assemblies as manufactured by Advanced Support Products, Inc.
(fig. 1) Pipe Hanger Design Uplift Resistance
(figs. 2, 3 & 4) Typical Roof Loads Due to Gravity Bearing Stresses
(Minimum, Medium, Maximum Hanger Assemblies)
(fig. 5) Product Information – Standard Bases

The data utilized for these calculations was obtained from Unistrut for the structural assemblies and from Grinnell for the pipe hangers. The information for the rubber molded bases was obtained from Advanced Support Products, Inc. product data.

The calculations performed are limited and only indicated the static loads that would be exerted on a roof deck by the support assemblies including standard sections of single or multiple lengths of pipe conveying natural gas and water.

The piping and hanger assemblies in this report are considered “dead” loads and should be taken into account during structural design of the roof system. The hanger assembly loads in the attached tables are intended to be used by the structural designer and provide the information required to properly evaluate the complete roof system.

The products and their characteristics were tested by Advanced Support Products, Inc. and represent the basis for our calculations. Roof membrane system analysis as well as long term performance of the products was not part of the calculation process. The following assumptions were taken into account for the calculations:

- Placement of load on pipe supports was assumed to be symmetrical
- Performance of the products at other than static loading was not part of the calculation process.
- Hanger assemblies and piping were assumed to be placed on a horizontal surface and pipe supports are normal to pipe.

Conclusions:

Based on our inspection and analysis of the product design, the load capacity values at each point of support of the pipe hanger assemblies, including the weight of piping are all less than the maximum allowable stresses for typical roof deck insulations types currently in use (5psi maximum). Therefore, the Adjustable Support Bridge Assemblies as manufactured by Advanced Support Products, Inc. meet Factory Mutual Research Corporation’s recommendation that the design uplift resistance for base should not exceed half of the ultimate design uplift resistance of the roof cover system. The uplift resistance therefore, is dependent on the uplift rating of the roof cover system.

(fig. 1) Pipe Hanger Design Uplift Resistance

Advanced Support Products, Inc. Uplift Resistance				
Base Size	FM Wind Uplift Rating			
	60	90	150	180
12” x 12”	30	45	75	90
7.25” x 6”	9.1	13.1	22.7	27.2
7.25” x 9”	13.6	20.4	34.0	65.3
7.25” x 13”	19.6	29.5	49.1	58.9

(fig. 2) Typical Roof Loads Due to Gravity Bearing Stresses
(Minimum Pipe Hanger Assembly)

Curb Area	**348 sq.in.**
Curb Wt.	32.0 lbs.
Frame Wt.	29.0 lbs.
Hanger Wt.	08.0 lbs.
Assembly Wt.	69.0 lbs. 1 pipe
	77.0 lbs. 2 pipes

Pipe Diameter	Quantity	Pipe Contents	Pipe Support Spacing		
			6 feet	8 feet	10 feet
4 inch	1	water	167.0 lbs	199.0 lbs.	229.0 lbs
			0.48 psi	0.57 psi	0.66 psi
	2	water	273.0 lbs	337.0 lbs	397.0 lbs
			0.78 psi	0.97 psi	1.14 psi
6 inch	1	water	259.0 lbs	319.0 lbs	379.0 lbs
			0.74 psi	0.92 psi	1.09 psi
	2	water	457.0 lbs	577.0 lbs	697.0 lbs
			1.31 psi	1.66 psi	2.00 psi

The bearing stresses indicated above reflect utilization of an adjustable support bridge assembly consisting of 2 each Cross Brace Bridges, 2 each Channel Legs and 2 each Adjustable Cross Bars.

(fig. 3) Typical Roof Loads Due to Gravity Bearing Stresses
(Medium Pipe Hanger Assembly)

Curb Area	**522 sq.in.**	
Curb Wt.	48.0 lbs.	
Frame Wt.	29.0 lbs.	
Hanger Wt.	08.0 lbs.	
Assembly Wt.	85.0 lbs.	1 pipe
	93.0 lbs.	2 pipes
	101.0 lbs	3 pipes

Pipe Diameter	Quantity	Pipe Contents	Pipe Support Spacing		
			6 feet	8 feet	10 feet
4 inch	1	Gas lbs	150	171	195
		psi	0.29	0.33	0.37
		Water lbs	183	215	245
		psi	0.35	0.41	0.47
	2	Gas lbs	223	265	313
		psi	0.43	0.51	0.60
		Water lbs	289	353	413
		psi	0.55	0.68	0.79
	3	Gas lbs	296	359	431
		psi	0.57	0.69	0.83
		Water lbs	395	491	581
		psi	0.76	0.94	1.11
6 inch	1	Gas lbs	195	235	275
		psi	0.37	0.45	0.53
		Water lbs	275	335	395
		psi	0.53	0.64	0.76
	2	Gas lbs	313	393	473
		psi	0.60	0.75	0.91
		Water lbs	473	593	713
		psi	0.91	1.14	1.37
	3	Gas lbs	431	551	671
		psi	0.83	1.06	1.29
		Water lbs	671	851	1031
		psi	1.29	1.63	1.98

The bearing stresses indicated above reflect utilization of an adjustable support bridge assembly consisting of 2 each Cross Brace Bridges, 2 each Channel Legs and 2 each Adjustable Cross Bars.

Testing – EcoCurb Pipe Supports

(fig. 4) Typical Roof Loads Due to Gravity Bearing Stresses
(Maximum Pipe Hanger Assembly)

Curb Area	**754 sq.in.**	Assembly Wt.	117.0 lbs.	1 pipe
Curb Wt.	80.0 lbs.		125.0 lbs.	2 pipes
Frame Wt.	29.0 lbs.		133.0 lbs	3 pipes
Hanger Wt.	08.0 lbs.			

Pipe Diameter	Quantity	Pipe Contents	Pipe Support Spacing		
			6 feet	8 feet	10 feet
4 inch	1	Gas lbs	182	203	227
		psi	0.29	0.27	0.30
		Water lbs	215	247	277
		psi	0.29	0.33	0.37
	2	Gas lbs	255	297	345
		psi	0.34	0.39	0.46
		Water lbs	321	385	445
		psi	0.43	0.51	0.59
	3	Gas lbs	328	391	463
		psi	0.44	0.52	0.61
		Water lbs	427	523	613
		psi	0.57	0.69	0.81
6 inch	1	Gas lbs	195	267	307
		psi	0.37	0.35	0.41
		Water lbs	275	367	427
		psi	0.53	0.49	0.57
	2	Gas lbs	313	425	505
		psi	0.60	0.56	0.91
		Water lbs	473	625	745
		psi	0.91	0.83	0.99
	3	Gas lbs	431	583	703
		psi	0.83	0.77	0.93
		Water lbs	671	883	1063
		psi	1.29	1.17	1.41
8 inch	1	Gas lbs	287	347	407
		psi	0.38	0.46	0.54
		Water lbs	417	517	617
		psi	0.55	0.69	0.82
	2	Gas lbs	465	585	705
		psi	0.62	0.78	0.94
		Water lbs	725	925	1125
		psi	0.96	1.23	1.49
10 inch	1	Gas lbs	357	437	527
		psi	0.47	0.58	0.70
		Water lbs	567	717	867
		psi	0.75	0.95	1.15
	2	Gas lbs	605	765	945
		psi	0.80	1.01	1.25
		Water lbs	1025	1325	1625
		psi	1.36	1.76	2.16
12 inch	1	Gas lbs	417	517	617
		psi	0.55	0.69	0.82
		Water lbs	707	907	1107
		psi	0.94	1.20	1.47

(fig.5) Product Information - Standard Bases (Rubber)

	Minimum Base	Medium Base	Maximum Base
Size (inches)	7.25 x 6	7.25 x 9	7.25 x 13
Weight	4 lbs.	6 lbs.	10 lbs.
Area	43.50 sq.in.	65.25 sq.in.	94.25 sq.in.
Area per Support Bridge			
4 bases	174 sq.in.	261 sq.in.	377 sq.in.
Area per Pipe Section			
8 bases	348 sq.in.	522 sq.in.	754 sq.in.

The bearing stresses indicated above reflect utilization of an adjustable support bridge assembly consisting of 2 each Cross Brace Bridges, 2 each Channel Legs and 2 each Adjustable Cross Bars.

Roof Deck Insulation Compression Strengths

Insulation Type	Unit Weight	Compressive Strength
Expanded Polystyrene	1.0 pcf	10 to 14 psi
	1.25 pcf	13 to 18 psi
	1.5 pcf	15 to 21 psi
	2.0 pcf	25 to 33 psi
Extruded Polystyrene	1.3 to 4.1 pcf	12 to 60 psi
Glass Fiber/Mineral Fiber	10 to 15 pcf	10 psi
Cellular Glass	8.5 pcf	100 psi
Fiberboard	--	12 to 18 psi
Perlite	10 to 13 pcf	35 to 40 psi
Polyisocyanurate	--	10 to 25 psi

Source: National Roofing Contractors Association, *Commercial low-Slope Roofing Materials Guide*, 1994 Edition

Abbreviations: **psi**. Pounds per square inch **pcf:** Pounds per cubic foot

Substitution Request

Project: _____ Date: _____

Architect/Consultant: _____

From: _____

Bidder hereby requests acceptance of the following product and systems as a substitution in accord with provisions of division one of the specifications:

Specified Product or Systems:

Substitution request for _____: Rooftop Pipe Supports

Supporting Data:

☐ Product data for proposed substitution is attached.

☐ Sample is attached or; ☐ Sample will be sent if required

Quality Comparison:

Specified Product: _____

Manufacturer: _____

Substitution:

Manufacturer: Advanced Support Products, Inc.

Significant Variations: 1. Cost savings to customer
2. Recycled material content
3. No pad or slip sheet required under bases
4. Absorbs shock, movement and vibration
5. Base will not penetrate roof system

Maintenance Service Available: Yes

Spare Parts Source: Advanced Support Products, Inc.
P. O. Box 1284, Tomball, TX 77377
281-357-1277 – 281-357-0577 Fax – 800-941-5737 Toll Free

Warranty

A. Advanced Support Products (ASP) warranty covers all cost of repairs and/or replacement of any components of the system against defects in manufacturing for the same period and duration as specified in Division 7 roofing warranty. Warranty will not include Acts of God, vandalism, neglect, metal finish or improper spacing of equipment.

B. If a protection pad or slip sheet is required, the requirements and/or specifications of the roofing manufacturer should be followed.

C. All products sold are subject to the following limited warranty. The product is free from defects in material and workmanship. ASP makes no other representation or warranty of any kind, express or implied, in fact or in law, without limitation, the warranty of merchantability or the warranty of fitness for a particular purpose, other than the limited warranty set forth. Every claim under this warranty shall be deemed waived unless made in writing and received by ASP within thirty (30) days of the date the defect is discovered or should have been discovered.

D. Limitations of liability is expressly understood and agreed that the limit of ASP Inc. liability shall be only to re-supply a like quantity of non-defective product and that ASP shall have no such liability except where the damage or claim results solely from defects in material and manufacturing workmanship. ASP shall not be liable for any incidental, consequential or other damages, for any alleged negligence, breach of warranty, strict liability or any other theory, other than the limited liability set forth above.

Maintenance:
Normal maintenance is not required. However, semi-annual inspection by the owner is required as part of the warranty. Inspection shall include checking pipe alignment, weight distribution and improper installation causing pipe stand damage or failure. Any failure of the product must be reported in writing within thirty (30) days of semi-annual inspection.