



DiamondPier®

FOUNDATIONS

Inspection Process

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Concept Overview

How It Works

Inspection Process



Who is Pin Foundations Inc (PFI)?

- Founded in 1992
- First prototype installed in 1984
- PFI is the Leading Expert in Bearing Pin Pier technology
- Over 30 years of research, growth, innovation, and expansion.





Engineering Principles

- PFI has specific knowledge of the related soil science: the engineering to evaluate bearing, uplift, and lateral loads along with specific knowledge on dynamic loading such as asymmetrical and rotational.
- PFI utilizes specific engineering principles to determine capacities and developed the testing protocols for bearing pin piers for the ICC Acceptance Criteria AC336.

Extensive R&D

- As the leader of product development for bearing pin piers, PFI is developing a wide range of products and applications from supporting simple residential projects to large public works projects, housing developments, and commercial applications. We have continually expanded the application since 1992.

Commercial Projects (IBC)

Site specific engineering:

- Site specific soils evaluation by a registered geotechnical engineer
- Site specific stamped capacities
- Stamped engineered plans
- Project submittal by a registered design professional

Residential Projects (IRC)

R104.11 - Alternative materials, design, & methods of construction & equipment

- Code is not intended to prohibit any design or method of construction not specifically prescribed by the code
- Proposed design complies with intent of the code

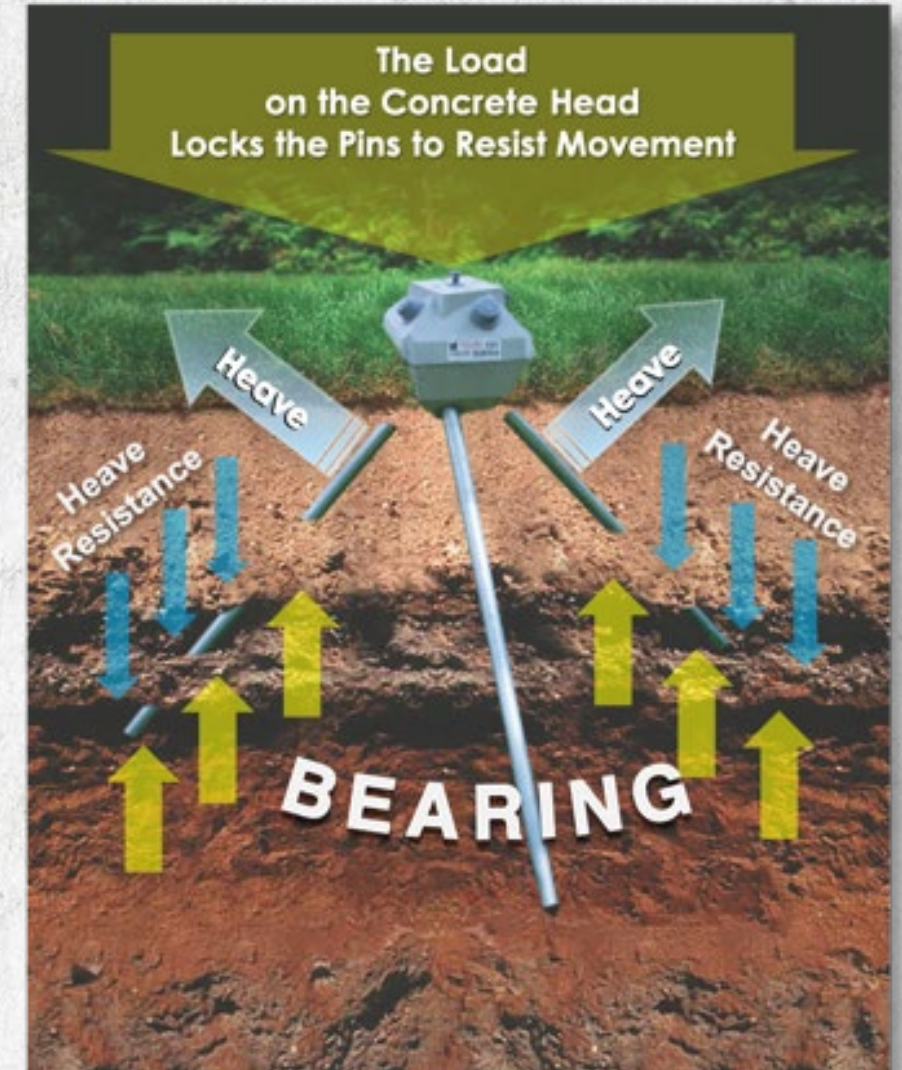
Documentation:

- Designer
- Evaluation Service Reports
- 3rd party accredited testing
- Manufacturer's installation instructions

Concept Overview

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The Diamond Pier handles forces differently



How It Works

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Diamond Pier is a structurally rated footing meant to replace a traditional concrete footing.

- DP-50/50 & DP-75/63
- Retail Models pre engineered for Decks, Screen Porches, Gazebos & More...

Diamond Pier is the only foundation system field tested for all opposed loads.

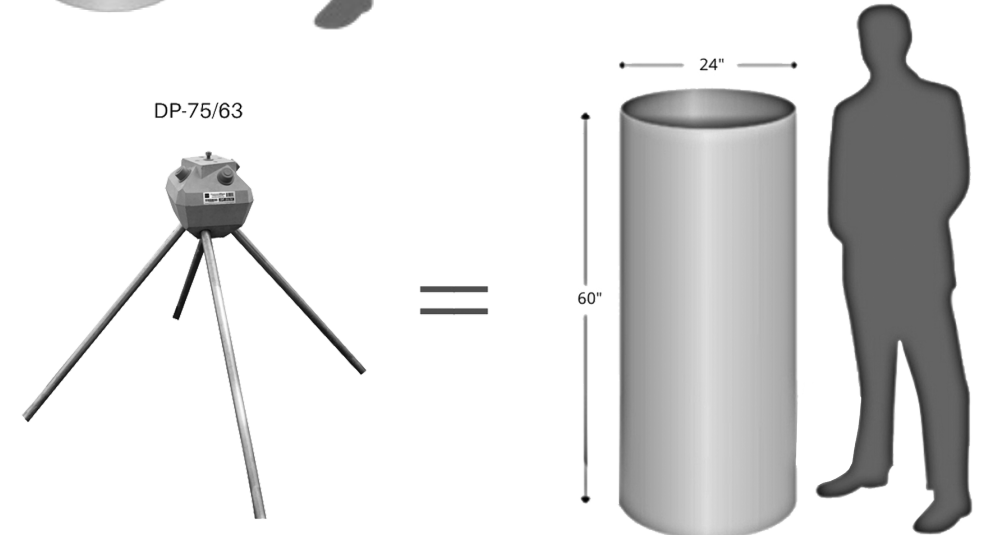
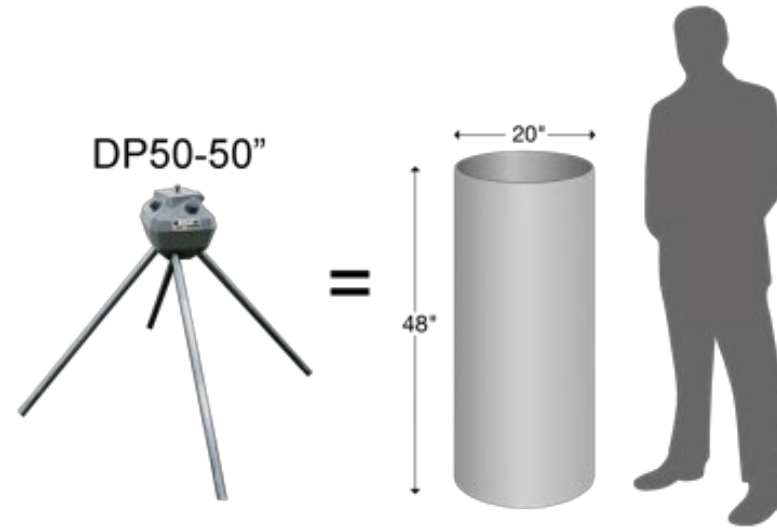
Documentation:

ESR-1895

EER-1895

Third Party Accredited Test for Uplift & Lateral

Structurally Rated/Code Compliant Footing



Equivalency Ratings

EER-1895 Condition 10

10. For requirements on frost protection, see table below:

Application/Use	Frost Protection Required?	Code Reference / Procedure
Detached accessory structures	No	R403.1.4.1 Exceptions 1 and 2 ¹
Exterior decks detached to a dwelling (2018 thru 2006 IRC)	No	R403.1.4.1 Exception 3
Exterior decks attached to a dwelling (2018 thru 2006 IRC)	Yes	Refer to Pin Foundations installation manual for the proper size Diamond Pier model recommended for specific frost depth requirements
Exterior decks attached to a dwelling (2021 IRC)	Yes	R507.3.3 / Refer to Pin Foundations installation manual for the proper size Diamond Pier model recommended for specific frost depth requirements

¹Contact Pin Foundations Inc, when frost protection is required on conditions outside the scope of the code reference exceptions.

RESIDENTIAL DIAMOND PIER LOAD CHART

IAS-Accredited Third-Party Bearing, Uplift, and Lateral Field Tests²

Minimum 1500 psf

Silts/Clays (CL, ML, MH, CH)³

Model No. / Pin Length	Bearing Load Capacity	□ Equivalent Base Area	○ Cylinder Comparison	⊗ Frost Zone	Uplift Load Capacity	Lateral Load Capacity
DP-50/36"	2700#	1.8 sf	18" dia	24"	600#	600#
DP-50/42"	* 3000#	2.0 sf	19" dia	36"	* 900#	* 600#
DP-50/50"	3300#	2.2 sf	20" dia	48"	1200#	600#
DP-75/50"	* 3750#	2.5 sf	21" dia	48"	* 1400#	* 600#
DP-75/63"	4200#	2.8 sf	22" dia	60"	1600#	600#

Equivalency to Traditional Concrete Footings

Minimum 2000 psf

Sands/Gravels (SW, SP, SM, SC, GM, GC)³

Model No. / Pin Length	Bearing Load Capacity	□ Equivalent Base Area	○ Cylinder Comparison	⊗ Frost Zone	Uplift Load Capacity	Lateral Load Capacity
DP-50/36"	3600#	1.8 sf	18" dia	24"	600#	600#
DP-50/42"	* 4000#	2.0 sf	19" dia	36"	* 900#	* 600#
DP-50/50"	4400#	2.2 sf	20" dia	48"	1200#	600#
DP-75/50"	* 5600#	2.8 sf	22" dia	48"	* 1400#	* 600#
DP-75/63"	6400#	3.2 sf	24" dia	60"	1600#	600#

Equivalency to Traditional Concrete Footings

³Interpolated from field test values

Timing of Inspection

Inspection can be done at any time as long as pins are accessible.

A Diamond Pier foundation code inspection may take place at any time during or after installation and may be combined with the structural framing inspection as each jurisdiction warrants.

The top ends of all pins should be accessible for measuring pin lengths



If inspection plugs have been unintentionally forgotten, then the pins can be twisted or jacked out with a pipe wrench to verify their length (see “Removing Pins” on page 13 of Installation Manual).



Pin Specifications

Bearing pins provided with the piers are schedule 40 galvanized pipe, Grade A electric resistance welded, with no threads. This also can be verified from above grade. With the pin cap removed, the weld can be verified on the inside wall of the pin, and the wall thickness can be checked.

1" nominal schedule 40 pipe has a wall thickness of 0.133" (just over 1/8"), 1-1/4" nominal schedule 40 pipe has a wall thickness of 0.140". The wall thickness tolerance is $\pm 12\%$.



Concrete Head Integrity

The concrete head must be level within 5 degrees

You can check 5 degrees of level as represented by measuring a $< \frac{1}{4}$ inch of variance over 6 inches

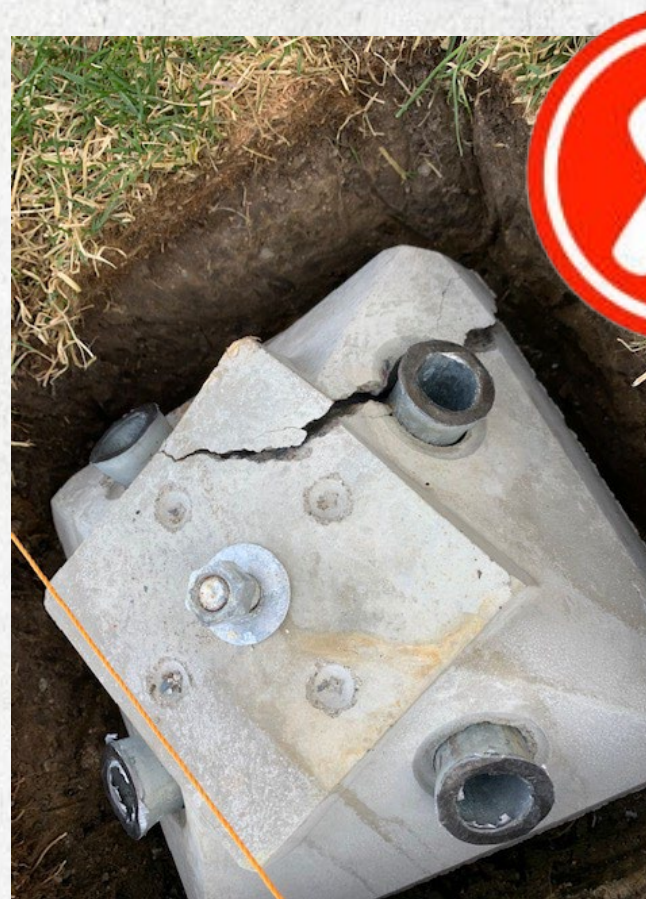
No cracks or fissures

Surface spalls or chips may occur but a crack or fissure running internally into the head must be replaced.



Concrete Head Integrity

Examples of damaged heads - Good vs Not Good



Verified Tributary

Verify that the spans and centers in the plan review have been maintained

This value should not exceed the published capacity of the Diamond Pier model and corresponding pin length defined in the Diamond Pier capacity chart.



Details defined in the Code Documents and the Installation Manual are reviewed during the plan review process. Verify that the installation meets the requirements of the documents.

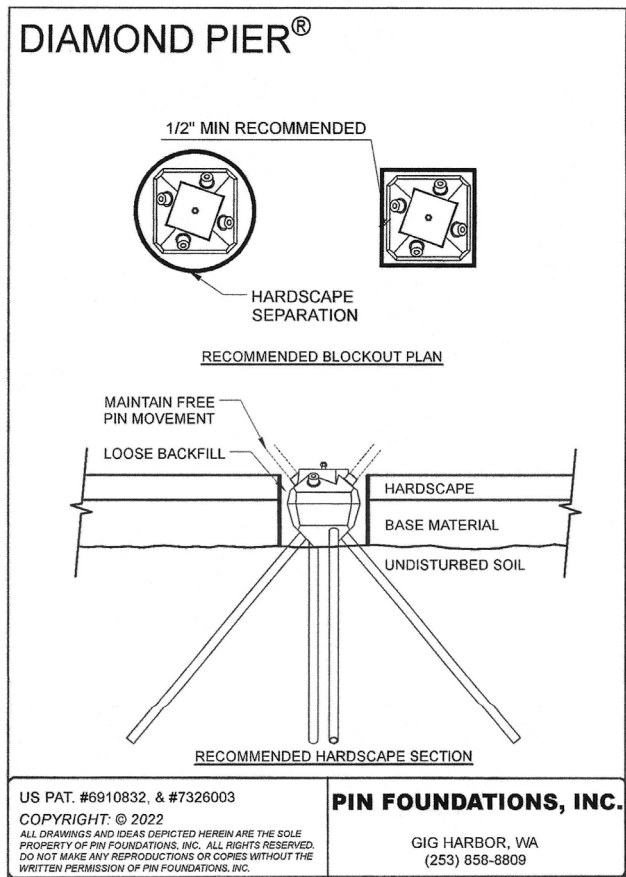


FIGURE 4: HARDSCAPES DETAIL

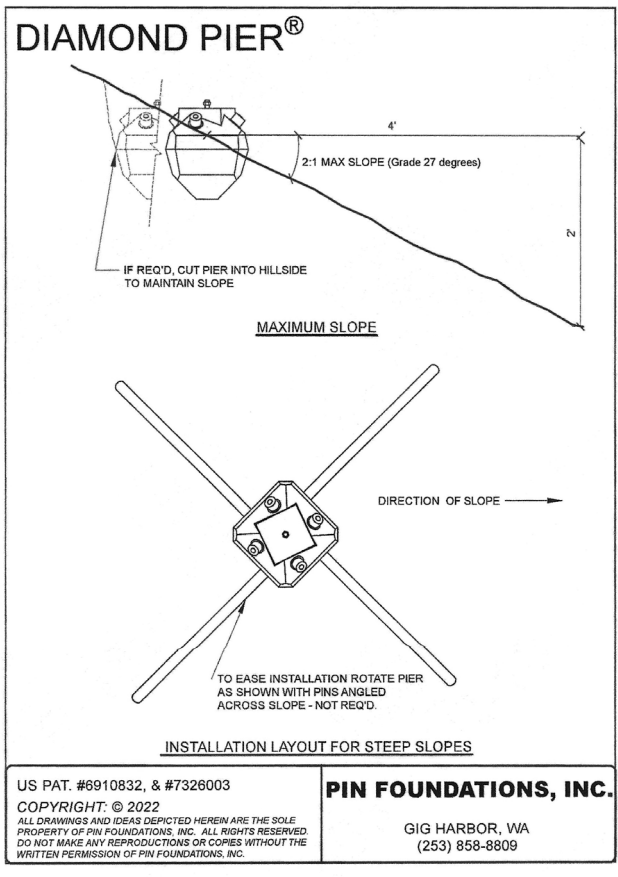


FIGURE 6: SLOPE DETAIL SETBACKS

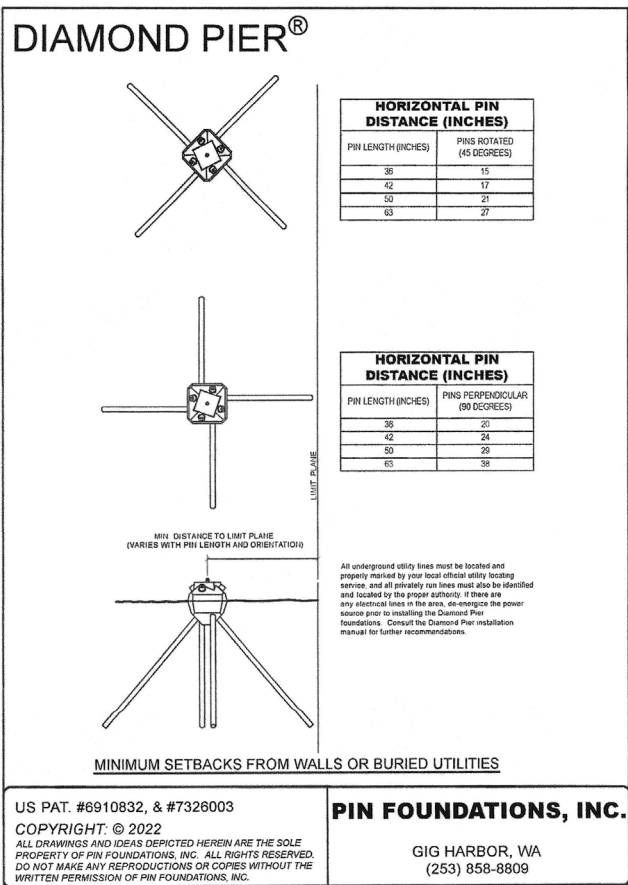


FIGURE 5: LIMIT PLANE SETBACK

Thank You

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