



Stargaze Ltd.

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*Construction without Excavation*

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LOW IMPACT FOUNDATION TECHNOLOGY

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## APPLICATION



*BOARDWALK BRIDGE - Constructed on Diamond Piers without Disturbing the Vegetation or Bank Soils  
Nisqually Delta National Wildlife Refuge US Fish and Wildlife Service*

**Pin Foundations** are designed to allow Low Impact construction of recreational structures in parks, preserves and wildlands. Now boardwalks, stairways, bridges, shelters and overlooks can all be built in these sensitive environments with minimal site disturbance - saving time and equipment costs, reducing erosion, and preserving the integrity of existing soils, native vegetation and the natural flow of groundwater.

The systems are simple to install using small, lightweight components and construction tools. They are totally removable, and unlike most driven pile systems can be maintained completely from above ground. The first prototype of the Pin Foundation System was installed in 1984, and patented in the US in 1992.

Since that time, private, municipal, state and federal clients have all used Pin Foundation systems to support recreational and environmental education projects throughout the United States.



## PRODUCTS

*Cadd Details, Specifications, and Manufacturer's Installation Instructions are Available on Disc.  
Visit our Web Site for more Information.*



### DIAMOND PIER™ US Pat. #5039256

The Pin Foundation Diamond Pier™ is a pre-cast concrete pier and pin system which is light enough to hand carry into your site. It is used where low profile structures are desired, concrete to ground contact is required, or the overall aesthetic of concrete is preferred.

The Diamond Pier™ can be used in any penetrable soil, with either two or four pins per pier, and can be ordered with a variety of post or beam connectors depending on project design.

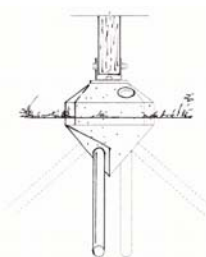
The pier is simply set in a shallow hole dug with a pointed shovel, and the pins are driven through it and capped. The bottom half of the pier is pointed, which allows the movement of expansive or frost soils, while the pins keep the pier locked rigidly in place.

There are two pier sizes - a fifty pound pier, the **DP-50**, and our original 100 pound pier, the **DP-100**. Each has different Pin diameters and corresponding capacities, allowing maximum flexibility and cost control in the design and support of surface structures.



DP-100 & DP-50

DP-100, Diamond Pier w/ 6x6 Post Attachment



Diamond Pier

Diamond Pier load capacity is based on soil conditions specific to each site. For public projects or high capacity structures requiring full permitting, a capacity analysis can be obtained from Pin Foundations, Inc. In order to complete this analysis, the following simple soil values must be provided:

**Dry Unit Weight** - in pounds per cubic foot.

**Angle of Internal Friction** - also known as Phi Angle and generally applied to granular soils

**Cohesive Strength** - in pounds per square foot and usually associated only with silts and clays.

This information can be obtained from sampling within the typical pin depth - 3 to 5 feet for most soils, (deeper for soft conditions) - and need not involve a testing lab or expensive coring equipment. Most local geotechs can make these determinations with a single field visit, or be able to determine the information from regional soil surveys or previous soils studies done on site.



Axial Load Test