



Approval #

Product # 201612-O

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Industry Services Division
1400 East Washington Avenue
P.O. Box 7302
Madison, WI 53701-7302

Wisconsin Building Product Evaluation

Material

DIAMOND PIER® DP-50 & DP-75
PRECAST CONCRETE PIER FOUNDATION ASSEMBLY

Manufacturer

Pin Foundations Inc.
5114 Pt. Fosdick Dr NW
Building # E-60
Gig Harbor, WA 98335

SCOPE OF EVALUATION

The Diamond Pier® DP-50 & DP-75 Precast Concrete Pier Foundation assembly manufactured by Pin Foundations, Inc. has been evaluated against the structural provisions of the current **Wisconsin Uniform Dwelling Code (UDC)**. The Diamond Pier® DP-50 & DP-75 Precast Concrete Pier Foundation assembly has been evaluated for use as a foundation for the support of gravity loads and specified lateral & uplift loads for exterior decks, including covered porches, elevated walkways and stairways regulated by the current **Wisconsin Uniform Dwelling Code (UDC)** and same site accessory detached structures not directly covered by the UDC rules.

DESCRIPTION AND USE

The Diamond Pier® DP-50 & DP-75 Precast Concrete Pier Foundation assembly manufactured by PIN FOUNDATIONS, INC. consists of a factory-fabricated, diamond-shaped concrete pier which has a steel anchor bolt precast into the center of the top of the pier and precast holes for the installation of steel bearing pins. Steel bearing pins are jobsite-inserted through precast holes and driven into the soil. Pins are 1-inch or 1¼" diameter steel of 36", 42", 50" or 63" length.

TESTS AND APPROVALS

Data & report (dated November 2006) was submitted to ICC-ES in accordance with the ICC-ES Acceptance Criteria for Precast Concrete Pier Foundation Assemblies (AC336) now dated August 2013 (Editorially revised September 2015). A 2010 Frost Performance Report for the DP50 Diamond Pier® in Minnesota was submitted. A 2013 Cross Pin Group Foundation Load Test Report for the DP50 Diamond Pier® was submitted under EEI Report No. 07-020-08 at the same site as previous November 2006 report. A National Performance Submittals, 2005 report for Diamond Pier® was submitted to show testimonials from across the country that Diamond Pier® should not be limited for frost/horizontal load forces to only detached decks & structures.

WISCONSIN UNIFORM DWELLING CODE (UDC)

For compliance with the current **Wisconsin Uniform Dwelling Code (UDC)**, ICC-ES Evaluation Report ESR-1895 Reissued December 2015 (*Corrected November 2016), including Evaluation Scope, Uses, Description, Design and Installation, Conditions of Use, Evidence Submitted and Identification of this product was referenced. The 2006, 2009, 2012 and 2015 International Residential Code (IRC) provisions referenced in the evaluation report are similar in scope and application to requirements under the **Wisconsin Uniform Dwelling Code (UDC)** provisions, but some terminology differences are noted. ICC evaluation report can be viewed at: http://www.icc-es.org/reports/pdf_files/ICC-ES/ESR-1895.pdf

Model DP-50 uses minimum 36" to maximum 50" steel pins. Model DP-75 uses minimum 50" pins, but may also use 63" steel pins. Model DP-50 & DP-75 foundations show bearing capacity in accordance with the 2006 & 2013 testing results noted above and summarized as shown in the Table below. Lateral and uplift values are subject to the limitations noted below, but are also shown in the Table below.

Diamond Pier conditions for use of this product in Wisconsin include the following:

- All Diamond Pier models installed in Wisconsin must have a minimum pin length of 50 inches.
- Diamond Pier models installed in Wisconsin must be installed in accordance with the current Pin Foundations, Inc published installation manual, the Diamond Pier Residential Load Chart, and this report.
- Where soil conditions are not appropriate for supporting the Diamond Pier foundation, use of the system is not allowed. Some examples include soils that are weaker than 1500 PSF, soils that are highly expansive, shifting or sliding soils.

Diamond Pier DP-50 & DP-75 precast concrete piers must be identified when shipped, including:

- The product name and model number
- The manufacture date and lot number and
- The phrase: "For use with one and two-family dwelling construction only."

TABLE: Cross Pin Group Allowable Load Carrying Capacity Recommendations in 1500 PSF properly drained soil

Embedded Pin Group	Equivalent Bearing Area (square feet)	Compression (pounds)	Uplift (pounds)	Lateral (pounds)
(4) 1" x 36" Pins	1.83	2,745	670	575
(4) 1" x 42" Pins	1.87	2,805	920	820
(4) 1" x 50" Pins	1.91	2,870	1,175	1,070
(4) 1-1/4" x 50" and longer Pins	2.93	4,400	1,380	1,310
Larger Diameter Pins		Values only determined through site-specific engineered calculations at 50" & longer		

1500 PSF properly drained soils generally include clay, sandy clay, silt and sandy silt. Properly drained soils of sand, silty sand, clayey sand, and silty gravel with a minimum 2000 PSF soil bearing capacity may have the bearing value above increased by 33% (as detailed in the full Installation Manual).

LIMITATIONS OF APPROVAL

In order to be in compliance with the frost protection requirements of **SPS 321.16** of the current **Wisconsin Uniform Dwelling Code (UDC)**, the Diamond Pier® DP-50 & DP-75 Precast Concrete Pier Foundation assembly shall utilize steel bearing pins that are at least 50" long when frost protection is required (shown **bold** in TABLE above). Minimum 50" long steel bearing pins are also required when these foundations must resist uplift or horizontal loading. The Wisconsin Building Product Evaluation Number must be provided when plans that include this product are submitted for review to the local building inspector.

DISCLAIMER

This approval will be valid through December 31, 2021, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation Number must be provided when plans that include this product are submitted for UDC review. The department is not endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: Jack A. Miller
Commercial building plan examiner

Approval Date: November 22, 2016 By: Jack A. Miller