A foundation plate accepts a structural member such as a beam or post. The foundation plate uses weep holes to prevent water damage to the structural member. Anchor slots allow the use of earth screws or other means to secure the foundation plate. Additional protection to the structural member is provided by the slope and shape of the foundation plate.
FIG 1 Bottom View of Bottom Piece
FIG 2 Top View of Top Piece
FIG 3 Side View
LOAD BEARING AND LOAD ANCHORING,
GROUND TO STRUCTURE FOUNDATION PIER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. provisional patent application 60/766,656 filed on Feb. 3, 2006 entitled "Load bearing and load anchoring, ground to structure foundation pier" which is incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

REFERENCE TO A SEQUENCE LISTING

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] (1) Field of the Invention
[0005] The invention relates to means and methods of creating and using a structure support pier suitable to support load bearing beams, posts, and other structural members.

[0006] (2) Description of the Related Art
[0007] U.S. Pat. No. 6,219,981 to Bergelt discloses a support pier with a plurality of tubular members. Bergelt fails to provide adequate means of drainage, lateral support for a post, means of securing the pier to the ground, or means of securing a post to the pier. Thus there is a need in the art for a more robust and versatile support pier.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention overcomes problems in the related art by providing a support pier with ample drainage, means of attachment to the earth and means of attachment to a post, beam, or other structural member. Lateral and vertical drainage channels within the upper support well remove moisture from any structural element secured within the recessed upper well. At each corner, vertically recessed wells create slope for drainage and access to vertical openings, suitable for securing the invention into the earth or other supporting structure.

[0009] The outer sides and outer recessed access wells of the invention are sloped away from the center support well. The four outer sides each have horizontal openings suitable for securing a structural element within the upper recessed well and horizontal openings suitable for drainage.

[0010] In one embodiment, a planer lower flat plate is placed under the main base assembly, allowing for intricate molding patterns within the main base assembly. The use of a lower flat plate allows the main base assembly to be constructed by injection molding, sand casting, and other economical methods.

[0011] These and other objects and advantages will be made apparent when considering the following detailed specification when taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a plan view of the bottom portion of the invention.

[0013] FIG. 2 is a plan view of the top of the invention.

[0014] FIG. 3 is a side cross-sectional view of the invention.

[0015] FIG. 4 is a perspective view of the top and side of the invention.

[0016] FIG. 5 is a perspective view of bottom and side of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0017] A load bearing, load anchoring ground to structure foundation plate is disclosed. The invention, sometimes referred to herein as a plate or pier, allows fast, economical and secure means to attach a supporting structural element to the ground. The invention may be made of any structural grade material, including but not limited to concrete, ceramic, composite plastic, wood fiber polymer composite or other polymers, in solid or honeycombed configurations.

[0018] Referring to the drawings, were like parts and labeled with like numbers, the bottom portion, shown in FIG. 1, may take the form of a square. Viewing the bottom reveals nine openings. There are four corner opening 3 that may be used to secure the plate to the ground or other structural member. Four inner openings 2 are suitable for the release of moisture. The inner openings 2 extend from the bottom to the upper recessed well. In the center of the plate is the center opening 1, suitable for drainage or for securing structural elements into the upper recessed well.

[0019] FIG. 2 is a plan view looking down upon the top of the invention wherein four recessed wells 4 allow access to two horizontal openings that enter the upper recessed well. FIG. 4 shows the upper horizontal opening 9 and the lower horizontal opening 8. The inner drainage channel 10 is within the bottom 11 of the inner recessed well 12. The inner drainage channel 10 allows moisture to exit at each lower horizontal opening 8 and removes moisture from the bottom 11 of the inner recessed well. Vertical spacers 13 provide an air gap between the inner recessed well and any post placed into the inner recessed well. Two vertical spacers 13 are shown on each of the four vertical sides or walls of the inner recessed well.

[0020] The outer side walls 14 are sloped to allow moisture and other elements to drain or fall away from the invention. The outer four corners have curved vertical recessed walls 15 to allow for the drainage away from the invention.

[0021] FIG. 5 shows the bottom of the invention with no bottom cover. Four straight bottom support braces 17 and one circular support brace 16 add strength to the invention and economies in manufacturing the invention. FIG. 3 shows a post 7 or other structural element within the inner recessed well.

[0022] Side Portions

[0023] From the bottom to approximately one or two inches, the sides are vertical. At the transition point one or two inches above the bottom, the side/top surface of the plate is in the shape of a pyramid. Adjusting the rise and run of the pyramid portion of the plate is useful to adjust the structural properties of the pier plate.

[0024] Well or Cavity

[0025] In the middle of the top surface there is an upper recessed well or cavity suitable for holding a securing a structural member such as a post 7. The well may be square. The well may have vertical interior walls. The vertical
interior walls may have a number of openings 4, suitable for securing a structural member to the plate.

[0026] The perimeter of the bottom of the well may have vertical openings suitable for the drainage of moisture 2. These openings may be referred to as “weep holes”

[0027] Middle Opening

[0028] An opening 1 in the middle of the pier starts at the middle of the upper recessed well and continues through the bottom of the bottom piece. The middle opening is suitable for securing a structural member to the pier or for drainage.

[0029] Contemplated Uses

[0030] In an underwater setting, the plate may be secured into the ocean floor by any means of attachment. The perimeter holes 3 in the plate may accept bolts, pile drivings, epoxy attached members or any other means of attachment. The upper recessed well 12 may rest under a pole, post, or other structural member. One or a multitude of plates may be used to secure a monolithic foundational member or flat metal member.

[0031] On Ice

[0032] In a cold environment, the disclosed invention may be used to secure temporary or permanent structures. The disclosed invention may be made of strong, lightweight material allowing for easy transport in adverse conditions. The relatively small size and reusable nature of the disclosed pier make the disclosed invention well suited for ice camping and/or cold weather expeditions.

[0033] In Space

[0034] The lightweight, small size and versatile utility of the plate make the disclosed invention well suited for securing structures or structural members on other planets, moons or space structures. The disclosed plate is easily manipulated by robotic arms or robots.

[0035] Mobile Homes

[0036] A contemplated method of use is to implement a number of plates at the perimeter of a mobile structure. The plates may be fitted with securing straps or typical “trucker hitches”. The securing straps may be fitted over the top and/or bottom of a mobile structure to secure the structure in a stationary manner. The use of plates presents a new means of saving structures facing adverse weather conditions such as tornadoes, floods, and hurricanes. The disclosed method of use may also be of benefit to prevent earthquake damage. Additional means of securing structures may be accomplished by using the plates in tandem wherein two rows of plates would secure two horizontal structural plates. The horizontal structural plates may then be used to secure straps or other means of attachment to a mobile home or other structure.

[0037] Bridges

[0038] The disclosed plates may be used to secure bridge members. The ability of the plates to work above and below the water surface make the plates particularly useful in bridge construction.

What is claimed is:

1. A plate suitable for securing objects comprising:
   a) a bottom surface, a side surface, and a upper recessed well in the top surface;
   b) an opening in the middle of the plate, that extends from top to bottom and is suitable for drainage and for securing objects into the upper recessed well;
   c) openings in the walls of the upper recessed well, suitable for providing means of attachment of the plate to the contents of the upper recessed well;
   d) outer walls that slope outwardly, so as to allow drainage away from the plate; and
   e) vertical openings at each corner of the plate, suitable for allowing means of attachment of the plate to the Earth or other structure.

2. The plate of claim 1 with four straight bottom support braces and one bottom circular support brace.

3. The plate of claim 2 with vertical spacers on the inner sides of the upper recessed well.

4. The plate of claim 3 with drainage channels in the bottom of the upper recessed well that drain horizontally out of the upper recessed well.

5. The plate of claim 4 attached on top of a flat bottom piece with nine openings.

6. The plate of claim 5 with earth screws used to secure the plate to the earth.

7. A method of securing mobile homes, using the plate of claim 5, wherein legs of a mobile home are placed and secured into the upper recessed well of the plate.

8. The method of claim 7 wherein the plate is secured into the Earth.

9. The method of claim 8 wherein the Earth screws are used to secure the plate into the Earth.

10. A method of protecting a structural member by attaching the plate of claim 5 to the structural member.