Lateral Stability with Helical Piers

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When building any structure, lateral stability of the piers and structure above must be considered and planned for. While we know the exact bearing capacity of the piers when they are installed, we do NOT know the lateral strength of the soil surrounding the piers in the first few feet of the soil. There are many strategies in supporting lateral loads and we will do our best to describe some of the most frequently used methods. When planning for lateral support the two areas that must be considered are above grade and below grade.

While lateral loads are usually easy to support, the owner must determine the method to support them based on your building plan. Depending on that plan, TMP AK can help you address these loads. Listed below are some methods in addressing both types of lateral support:

TMP AK-Provided Lateral Support

Batter piles usually set at each corner of a free standing structure at a 15* angle. They are welded to the vertical pier and provide below grade support to the structure.

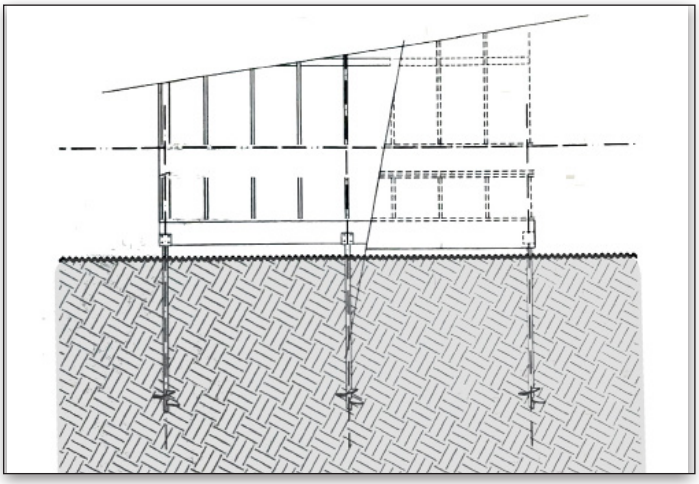
Above grade steel bracing: TMP AK can install tension bracing that can be tightened during construction. This bracing is advantageous when the piles are left more than 2' above grade.

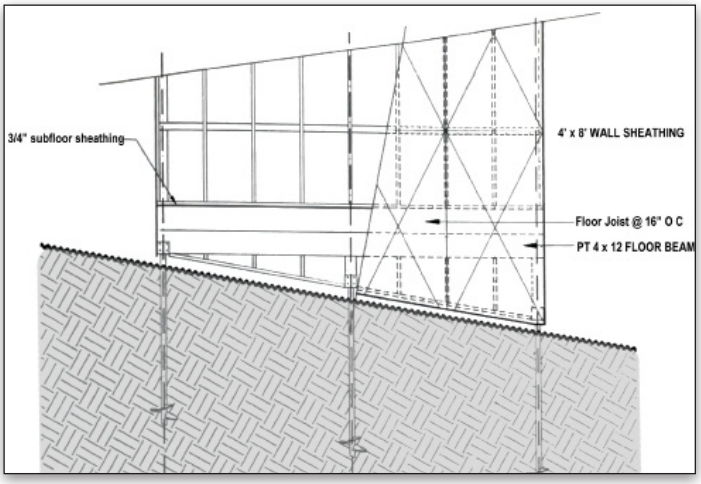
A complete steel frame is built off the posts. Usually designed by an engineer, TMP AK can fabricate and install a steel frame to support the entire structure. Usually the frame consists of the steel support beams, stability beams set 90* off the support beams and cross bracing between the posts.

Owner-Provided Above Grade Lateral Support

Wood posts and bracing/Flush beam construction: The most common way in addressing lateral stability of a structure. Most clients have us leave the piles and brackets 6″-8″ above grade. The owner builds up with a wood post and uses wood cross bracing or a sheer wall between the posts. If the deck or structure is low to the ground "flush beam construction" is optimal because it contains many 90 degree intersections of wood, creating stability. It is important that owner maintains 6″ of clearance between the ground and any bracing material or beams.

Wood Shear Wall



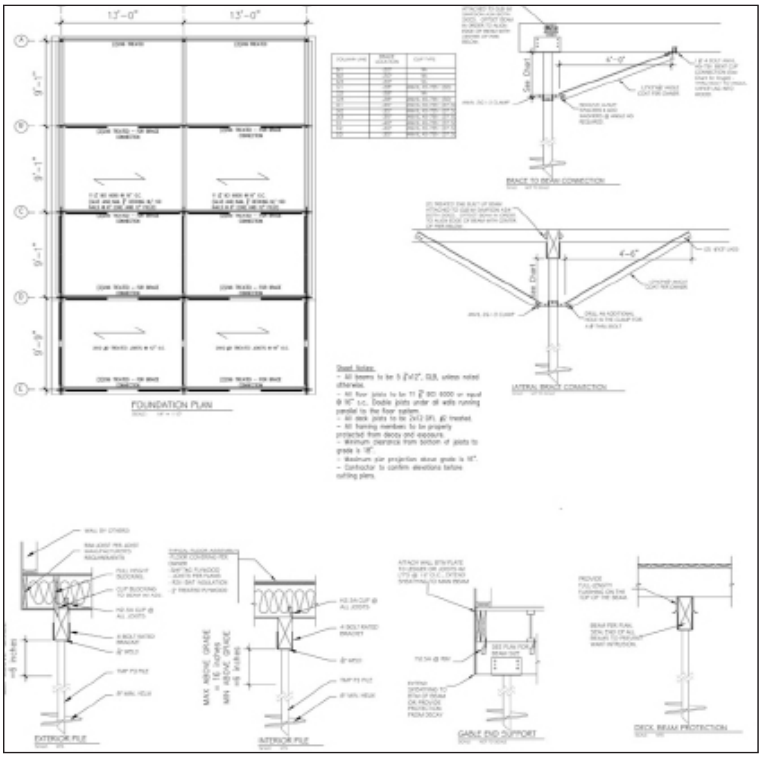


Wood Shear Wall: The best way to address lateral stability of a structure is with wood. On a level site, the structural beam rests directly on the posts, with a small framed wall built up to the floor height. On a sloped lot, the beam is higher with wood posts extending up to the beam. IN BOTH METHODS, the wall sheathing extends from a few inches above grade up into the wall system. The beam and framing must always be left 6″ above grade.

Larger Diameter Piles

P5 Piles: An effective method to stabilize a structure is to place four larger diameter piers at each of the corners. The increased surface area of the P5 pier allows for more contact with the surrounding soil and creates better lateral stability. Placing these larger diameter piers at the corners can mitigate the need for additional methods of bracing.

Bolted Bracing



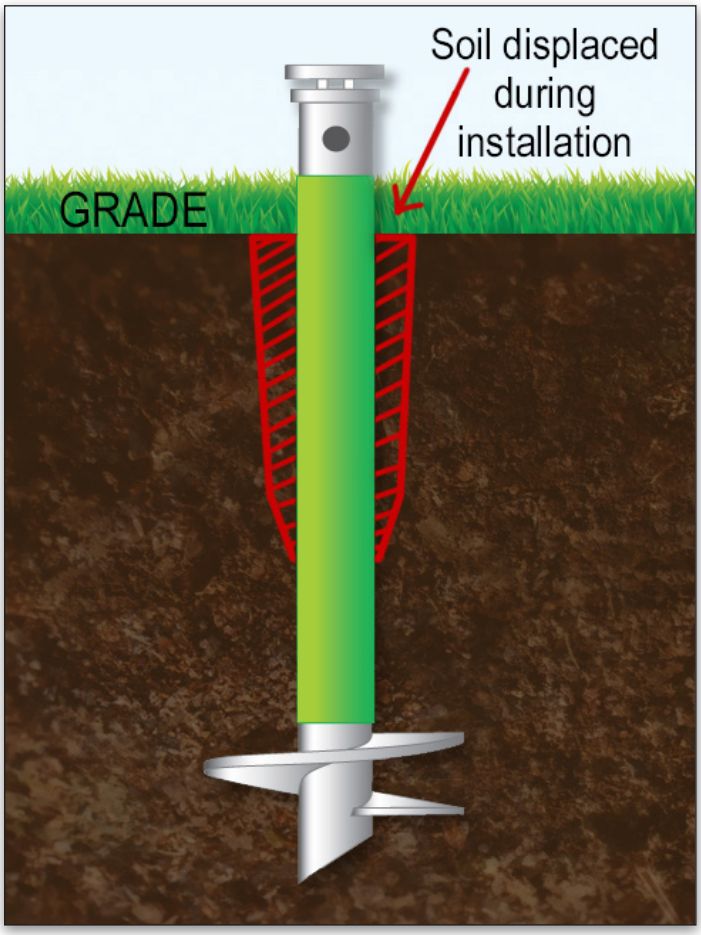
Bolted Bracing: This technique allows the builder to add bracing to our P3 piers after the structure is built if an increase in lateral stability is deemed necessary.

The drawing at left shows the two connection methods available.

As shown in the photo below, this bracing connects directly between the helical pier and the wood framing of the structure.

TMPAK manufactures and sells this bracing in three different lengths for $75 per section. The package includes all necessary hardware for installation. The steel for the bolted bracing is ungalvanized but can be painted by the owner if desired.

Sand Slurry



Sand Slurry: If the soil is stable, TMP AK can fill the annular void left during installation with a sand/water slurry mix with compaction.