



HELICAL PILE INSTALLATION INSTRUCTIONS

YOU ARE RESPONSIBLE FOR KNOWING, UNDERSTANDING AND COMPLYING WITH ALL SAFETY RULES AND REGULATIONS AS WELL AS ANY PERMIT REQUIREMENTS!

1. Using the free "One Call Service" or another utility locating service, locate all existing underground and overhead utilities at the locations of the proposed piers to determine whether there is conflict. Hand probe or dig in any suspicious areas within 3 feet of areas where utilities are known to exist.
2. Expose the foundation and footing at the proposed pier locations. In some instances, you may elect to excavate and expose the foundation and footing along the whole side of a structure. Always follow OSHA regulations in regards to shoring to protect against excavation cave in.
3. Pier placement should begin no further than 2 feet from any corner, and depending on the condition of the footing and/or the weight of the structure, place piers every 2 feet to 6 feet on-center. The piers, however, should not be placed more than 6 feet apart unless specified by a structural engineer. If there are cracks in the footing – especially under a window, place a pier under each crack or, in the case of multiple cracks or a crack under a window, the crack(s) must be spanned between brackets using appropriate strength square steel tubing or steel plate.
4. After exposing the footing, clean off all foreign material from the top of the footing in the areas where the piers are to be installed. Drill 5/8-inch holes through the footing flange about 3/4-inch away from the stem wall using a rotary hammer drill. Drill the holes every two inches along the footing flange for a total length of 18 inches. At the ends of the section of concrete to be removed, drill 5/8-inch diameter holes every two inches along lines perpendicular to the stem wall to the outside edge of the footing flange.
5. After completion of the drilling, break off the 18-inch long section of concrete that was isolated by the drilled holes with a chipping or jack hammer and a flat chisel bit.
6. Smooth the just-broken vertical faces of the concrete using appropriate tools so that the bracket fits flush against the footing. Ensure that the front of the footing is flat and not tapered in either direction.
7. Remove the soil from beneath the footing to a depth of about 12-14 inches. Thoroughly clean

the footing where the bracket is to be installed. Verify that the bottom of the footing is level, side to side and front to back. If the bottom of the footing it is not level, utilize a high strength grout or similar material on the bracket seat so the bracket is seated flush and in full contact with the bottom of the footing.

8. Position the lead section into the space created in the footing flange. Place the tube adaptor attached to drive head onto the lead section and secure. Advance the lead section until the tube adaptor is approximately 3 inches from the soil. Log your torque reading and depth on the helical pile log.

9. Remove the tube adaptor and attach an extension to the previously driven section and secure with nuts and bolts provided by the manufacturer, alternating the direction of the middle bolt. Place the tube adaptor attached to the drive head onto the newly installed section and secure. Advance until the tube adaptor is approximately 3 inches from the soil. Log your torque reading and overall depth on the helical pier log.

10. Attach and advance additional extensions as required until you achieve your required torque reading at or below the minimum specified depth, if applicable.. Maintain or increase that torque reading for three continuous feet, logged at one foot intervals, to ensure suitable bearing stratum. Use the average of the last three feet of installation as logged for your torque/capacity calculations. Repeat the process for all additional piles.

11. Once you have detached from the last driven extension, terminate the elevation of your pile 11-12 inches above the cleaned, bottom surface of the footing. Slide the bracket onto the pile facing away from the foundation and continue until the bracket is below the bottom of the footing. Turn the bracket around (180°) and raise it to fit tight against the footing. **Remember:** If the bottom of the footing it is not level, utilize a high strength grout or similar material on the bracket seat so the bracket is seated flush and in full contact with the bottom of the footing. Secure the bracket to foundation with two-1/2" anchor bots, and equivalent strength concrete screw such as *Tapcon* or *Titan* or adequate cribbing to hold the bracket in place while you attach and secure the pier cap. Once the bracket is tight against the foundation, backfill the excavated soils under the foundation and around the pile for added support.

12. Install the Grip-Tite pier cap with the nuts and threaded rods provided by the manufacturer. Place the pier cap on top of the last extension. Attach the rods and leave 1 ½ to 2 inches of the rod threads exposed above the nut on top of the pier cap to accommodate the coupler for the Grip-Tite lift cylinder. Once the correct amount of rod thread above the nut is exposed, run the bottom nut up hand-tight against the bottom of the bracket. Tighten all nuts evenly so that the pier cap remains level.

13. With the pier cap in-place and the rods tightened, the lift cylinder may be installed. To install the lift cylinder, set it on the pier cap with the center of lift-cylinder in center of the raised welded circle on the pier cap. Screw the coupler on the rod that is attached to the lift cylinder to the bracket rod that is sticking up through the pier cap. Screw the coupler on the lift cylinder rod until it bottoms out on the bracket rod. The nut on the top of the pier cap may need to be adjusted to make sure that there is enough thread for the coupler to be completely screwed onto the bracket rod. The coupler on the lift cylinder rod shall be screwed onto the lift cylinder rod so that the top nut on the bracket rod is resting on the cap. Adjust the nut on the bottom of the bracket rod so it is tight against the bottom of the bracket. Finally, tighten the nut on top of the lift cylinder.

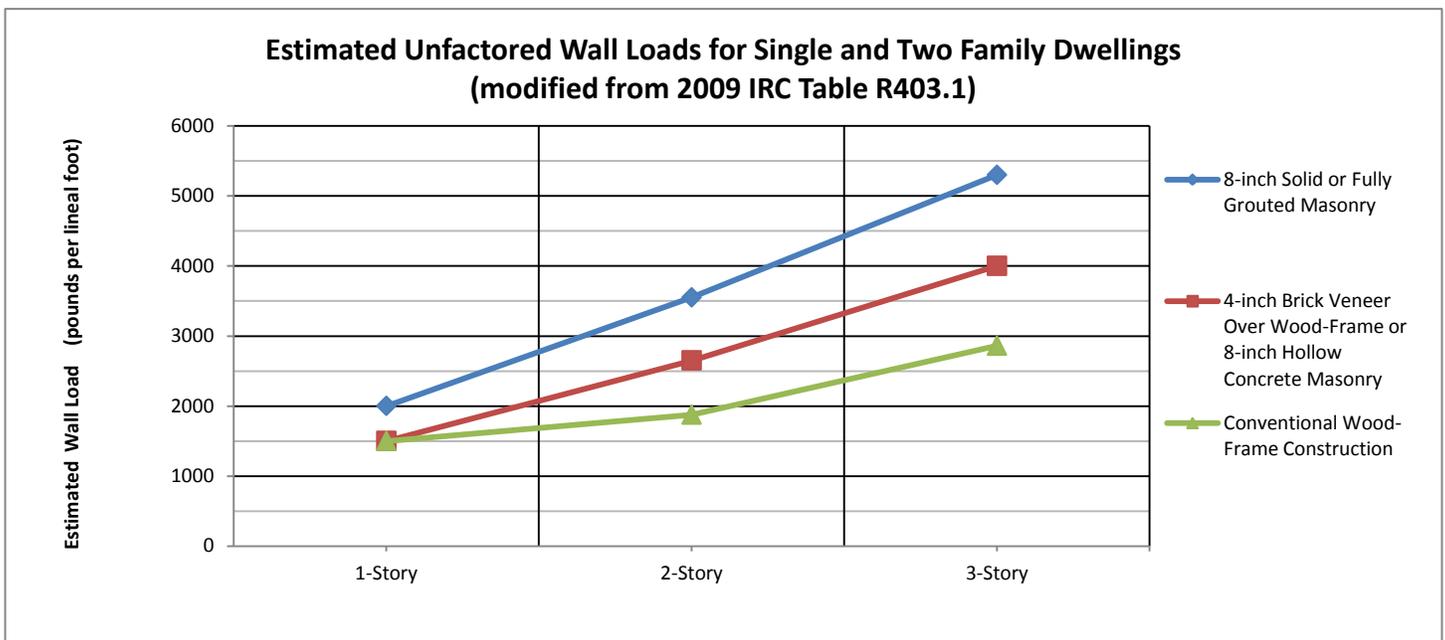
14. Once the lift cylinders have been placed on each pile, connect properly rated, hydraulic hoses to each of the lifting devices in series (All of the “in” valves in one series, all of the “out” valves in another series). Insert plugs into the last lift cylinder in the series.

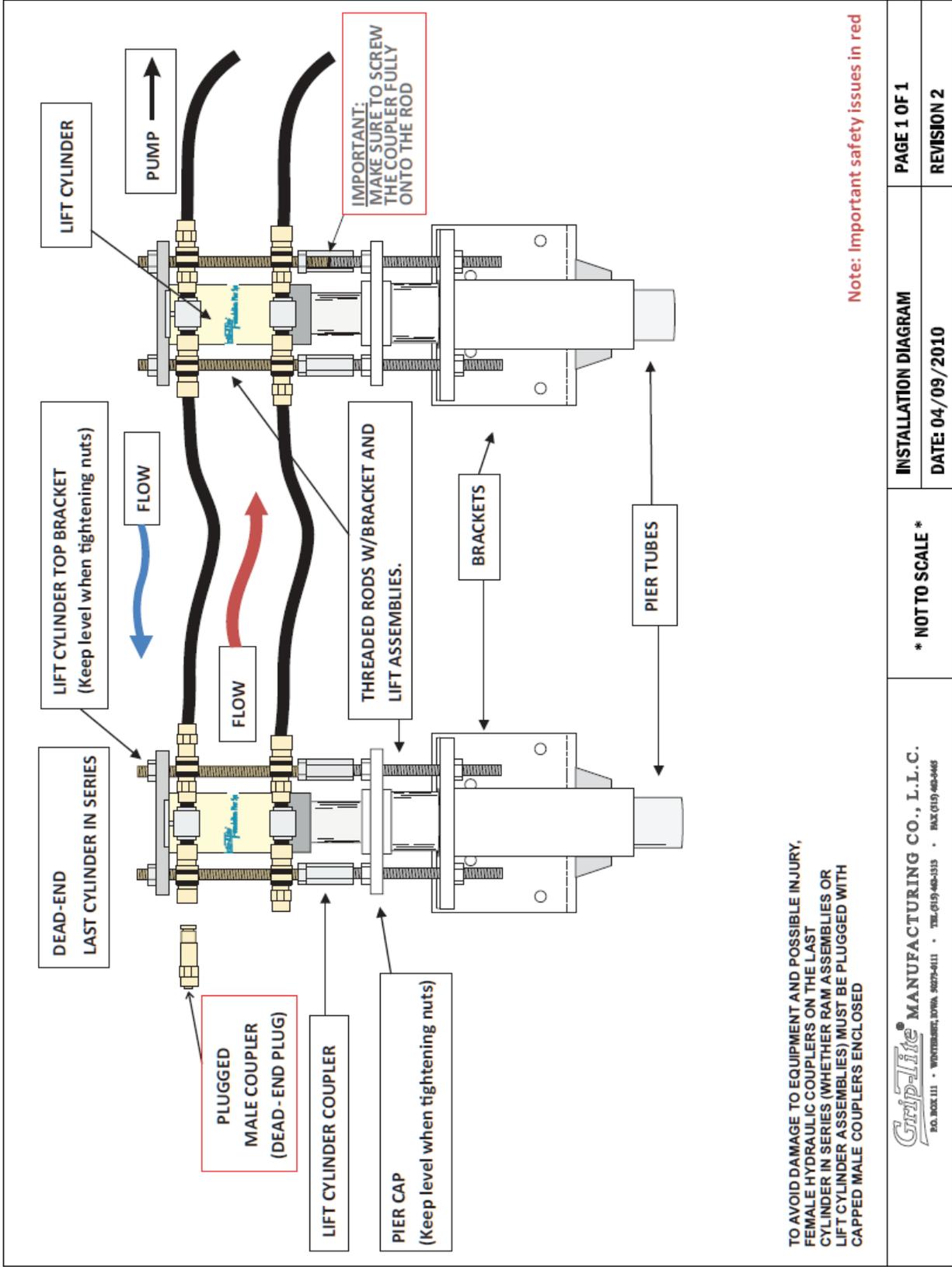
15. Open the control valve on the lifting device closest to the pump. With the pump control valve in the drive position, use the pendant control to pressurize the device to 1,000 psi. Close the valve on the first lifting device and open the control valve on the second lifting device. Use the pendant control to pressurize the second lifting device to 1,000 psi. Continue this procedure until all of the lifting devices have been pressurized to 1,000 psi making sure to close one control valve before opening the next one.

16. Once the hydraulic pressure to each lifting device is set at 1,000 psi, the lifting process may begin. Backfill and compact the soil up to the footing/bracket. This will provide protection against shaft buckling, especially with heavy structures. Open all the valves at each lifting device and slowly apply pressure. After the structure has been lifted to the desired level, close the control valves on all of the lifting devices. Next, tighten all of the nuts on the top and bottom of the bracket, which will hold the foundation in place. (Tightening the nuts on the bottom bracket will transfer the weight of the foundation to the bracket/pile system.) Disconnect the lifting devices and remove the equipment from the excavations.

17. Backfill the excavations with the excavated material in loose lift thicknesses less than 6 inches if the materials are suitable. Unsuitable soils should not be used as backfill. Soil clumps, rocks larger than 3 inches, wet soils or dry soils are examples of unsuitable fill materials. In landscaped areas or within the top 2 feet of natural grade, place the soil in loose lifts no greater than 12 inches in thickness. Compact each lift to a firm and unyielding condition before placing subsequent lifts. Compaction should be performed by a manually operated, upright compactor generally referred to as a jumping jack or hand tools to achieve a similar result. Relocate shrubs, plants and sod if applicable.

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Note: Important safety issues in red

TO AVOID DAMAGE TO EQUIPMENT AND POSSIBLE INJURY,
 FEMALE HYDRAULIC COUPLERS ON THE LAST
 CYLINDER IN SERIES (WHETHER RAM ASSEMBLIES OR
 LIFT CYLINDER ASSEMBLIES) MUST BE PLUGGED WITH
 CAPPED MALE COUPLERS ENCLOSED

GripTite MANUFACTURING CO., L.L.C.
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* NOT TO SCALE *

INSTALLATION DIAGRAM
 DATE: 04/09/2010

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