

Portable Hole Lite

The Portable Hole Lite (PHL) was devised as a little brother version of another design by Walter & Jackie Monkhouse of [Magic Christmas](#). It is recommended to review Walter's original How -To for the [Portable Hole II \(PHII\)](#). The intent of this How -To is to just define the difference for the PHL. The primary difference is just size and what is used to tether the PHL to the ground.



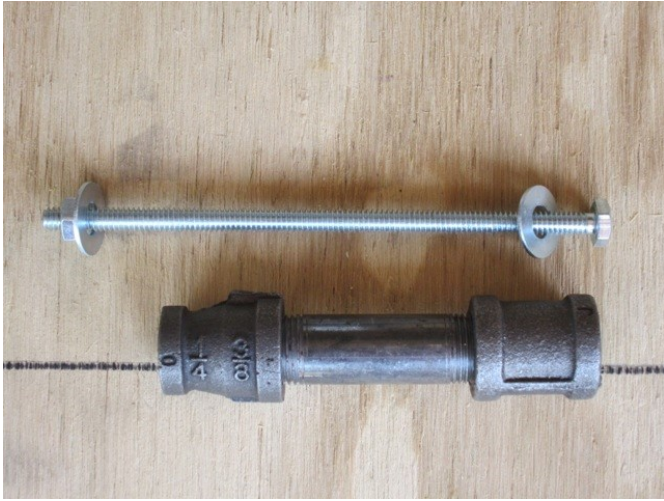
The Portable Hole Lite FORM is a 17.5" square box. It is made with 2"x4" treated lumber. Cut 2 pieces 17.5" and 2 at 14.5" and screw or nail them together. The PHL can be adapted to use with regular Galvanized/Black Pipe or Rigid Electrical Conduit as the mating riser pole.

The intended mating pole is a 1.25" Rigid Electrical Conduit meant for Walter's new [ASAP](#) design. **ASAP** = A Strap And Pole. A fast, easy Hookhead lifting pole using a winch.

Another design of Walter's, the **JUMP**, can be adapted for use with the Portable Hole Light as well. Here is a link to Walter's [JUMP](#) Pole.

The Threaded Receiver Assembly uses a 1.25" Floor Flange, 1.25" Pipe Nipple, and either a 1.25" Pipe Coupler, **OR** a 1.25" Rigid Electrical Conduit Coupler. For the plumbing parts, Black or Gas piping will be cheaper than using Galvanized, and will not change the structural strength. If a Pipe Coupler is used, the horizontal bolt in the Receiver Assembly pictured here and on page 3 is not necessary. The horizontal bolt is there to keep the Rigid Conduit Coupler from loosening and spinning in the concrete, while screwing your riser pole in. A Pipe Coupler has ridges and indents that grip the concrete.

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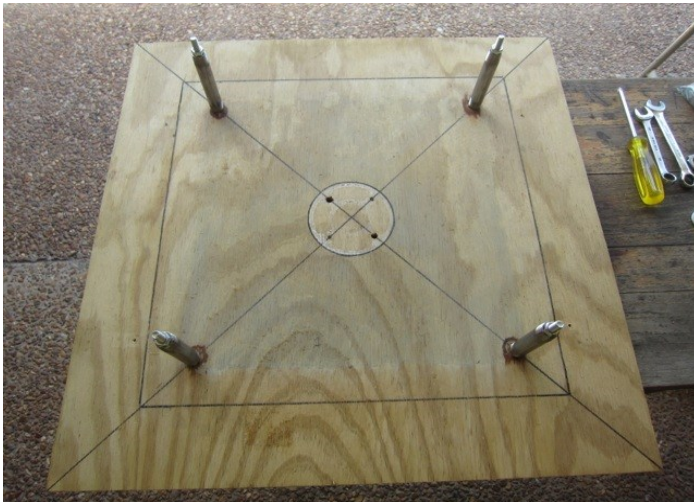


The Tether Hold Down Assembly is (Black Pipe), 3/8" Threaded Pipe Coupler, 3/8"x 2-1/2" Pipe Nipple, and a 3/8" to 1/4" Pipe Reducer. The bolt show here is a 1/4-20 x 5" long. Its sole intent is to hold the Tether Hold Down in place while pouring the cement and letting it dry/cure. It gets removed and an Eye Bolt with a Nut is inserted, and the Turnbuckle Assembly is used to tether the PHL to the ground with rebar or concrete form stakes. The advantage with this assembly, is that it provides multiple surfaces for the concrete to form around and secure it in place to handle the downward pressure that tethering causes.



[Locking Fixture Nut](#)

As a lower cost alternate; Instead of the 3 part assembly, use a single 3/8" x 4" Pipe Nipple. The threads would need to be exposed above the concrete on top. A 3/8" Locking Fixture Nut and washer would be needed to prevent the nipple from being pushed downward and having it break out of the concrete, when tethered to the ground. NOTE: There has not yet been any practical testing performed with this option. Use or modify at your discretion.



The Plywood Bottom base is a 2'x2' piece of 1/2" CDX Plywood. Alignment marks are used to outline the FORM, and Floor Flange location. Holes are drilled to hold the Tether Hold Down Assembly, and the Floor Flange in place for the concrete pour. It is advised to add at least 4 wood screws on the bottom side of the plywood, to secure it to the FORM during pouring and curing.

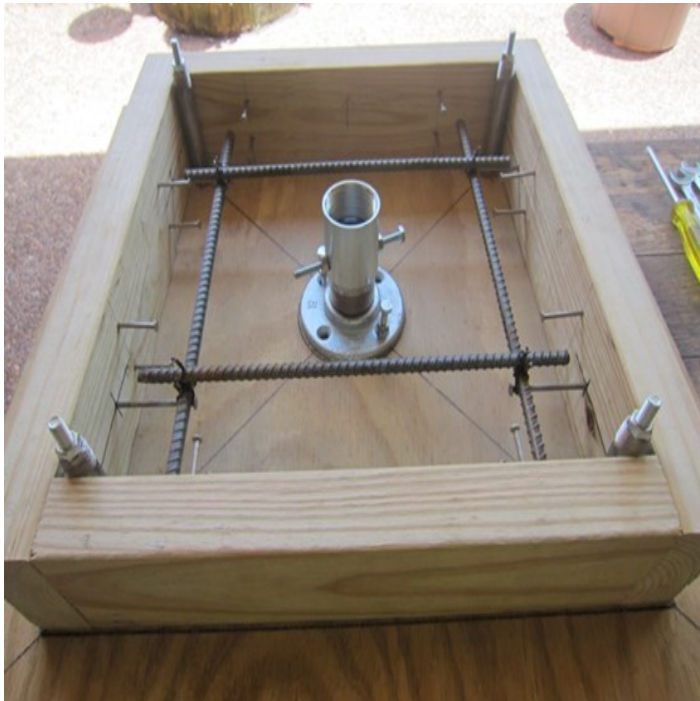
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The bolts holding the Floor Flange in place are 1/4 - 20 x 2". You will need 3 mating nuts and 2 washers. One nut/washer goes on the bottom of the plywood to help hold the plywood in place. One nut is placed just below the bolt head with a washer to add extra bit and hold in the concrete, the last nut is on top of the flange hole to hold it in place.

The PHL uses added Eye Bolts to slide over the Tether Hold Down Assembly. This ensures added structural stability when tethered to the ground.

NOTE: *The Tether Hold Down Assembly provides the highest down force when they are placed as pictured, in the FORM corners. Do not be tempted to move them inward, you will render them less effective.*



This form factor only requires 1 - 60lb bag of cement to fill the "Hole". Follow the instructions on the bag on how to mix the cement. Keep covered with plastic and damp while curing for the first 24 hours.

It is highly recommended to let the PHL sit for 7 days before removing the bottom plywood and the bolts holding the Tether Hold Downs Assembly. Use a grinder or hack saw to cut the bolt sticking out the bottom that is holding the Floor Flange in place, flush with the bottom of the Floor Flange. The concrete will continue to cure for 28 days.

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Finished PHL before painting

After cured, it is advisable to either paint the PHL black with a latex paint, or use a product like [Flex Seal](#). This serves to hid the Hole at night and continue to protect it from the weather.



The 3/8" x6" Eyebolt slides into the Tether Hold Down and the nut acts as a stop to elevate the eye upward. This provides greater hold down using the turnbuckle to attach to your rebar, or in my case, concrete form stakes.

All the hardware shown gets painted black as well so that it is not seen at night.



Leveraging a Spring Snap Link allows you to slide over your stake in the ground.

NOTE: It is recommended with the PHL, that you go no more than 12-13' in pole height as a free standing pole. To go higher, either guy wire the pole, or, add extended feet as Walter describes in his [PHII](#) document.

This document describes how the Portable Hole Lite was built for my own personal use. Anyone using these plans to build and use a PHL, does so at their own discretion and liability.