NEMA 6-50 Welder Outlet

To be able to fully utilize the capabilities of the welder, I had to install a NEMA 6-50 receptacle. This document briefly outlines the steps and parts required.

I had originally planned on hiring an electrician to do this, but after finding out that it would cost about $700 to have this done, I ended up doing it myself for $122.52 and a few hours of my time.

Contents

Step 1 – Open the area above your breaker panel

I had originally attempted to use an endoscope to see what was behind the wall, but was stymied and couldn't see anything on the scope. After cutting the sheetrock away, I could see that the reason for this is that the wall is packed with insulation.

Step 2 – Figure out the best way to route the conduit out

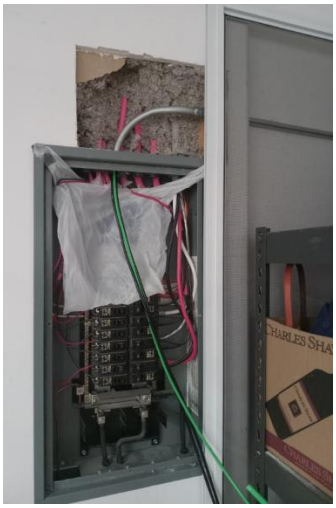
For my situation, I ended up bending a piece of conduit from an unused knock-out hole in the top of the panel to the right wall surrounding the panel, and drilling a hole through the right side for a second piece of conduit to slide in and connect to the first piece.

Step 3 – Find a stud to mount the receptacle and bend the conduit to reach there

Once accomplished, you can wire the receptacle up and slide the wires through the conduit.

Step 4 – Run the wires through the smaller conduit into the panel & screw receptacle to wall

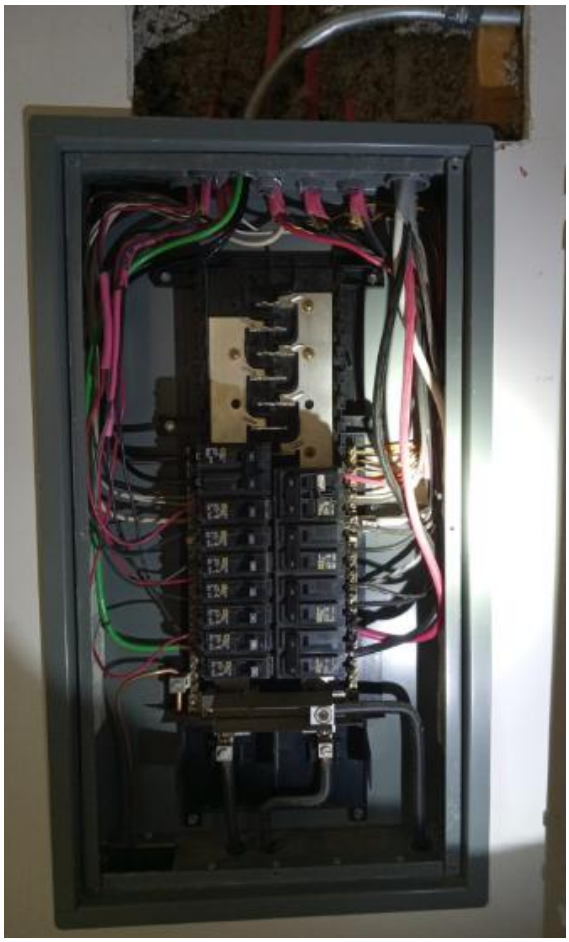
You will of course need to tighten the conduit couplers (not mentioned in parts – I had them laying around) as well.



Step 5 – Wire in breaker and cover receptacle

I used 6 AWG wire in case I later needed to use 50A, but installed a 40A breaker because I was planning on using an extension cord that claimed to carry 50A but only used 8 AWG wire. Additionally my welder didn't need over 40A and standard electric car chargers only require about 35A.

The two rectangular connections on the receptacle go to each side of the breaker output, and the center half-circle connection on the receptacle goes to the earth ground in the breaker panel.



Parts Required

ELEGRP 50 Amps 250V Flush Mounting Power Outlet, NEMA 6-50R Receptacle, Straight Blade Welder Outlet, Heavy Duty, Grounding, 2 Pole 3 Wire, UL Listed, 1 Pack (amazon.com)		9.99
RACO Gray Metal New Work Standard Square Wall Electrical Box in the Electrical Boxes department at Lowes.com		8.98
Leviton 4934 2-Gang Flush Mount 2.15 Inch Dia. Device Receptacle Wallplate, Standard Size, Steel, Device Mount, Painted Metal - Switch Plates - Amazon.com		3.91
Square D by Schneider Electric HOM240CP Circuit Breaker, Black (amazon.com)		23.56
Southwire SIMpull 250-ft 6-AWG Stranded Green Copper THHN Wire By-the-foot in the TFFN & THHN Wire department at Lowes.com		45’ @ $1.52/ft 68.40
1/2-in x 10-ft Metallic EMT Conduit in the Conduit department at Lowes.com		7.68
TOTAL		**122.52**