

Sampler Square 5:

TOOLS

Bench block
Chasing Hammer
Permanent marker
Solder Setup
Pro Polish pad



All metals have an atomic structure that makes them malleable. That means that metal can be shaped through hammering and bending. However, as these metals are repeatedly moved and shaped the crystalline structure of the atoms are moved out of alignment. The metal then becomes more brittle and harder to bend or flatten. This process is called **work-hardening**.

As you may imagine, work-hardening is a desirable quality in a finished piece that you want to maintain its shape as you wear it, but can be very frustrating if you are still forming and shaping the metal. I'm sure those of you with any metalworking experience have encountered this situation. That piece that seemed so cooperative when you were first shaping it just won't bend to your will anymore!

To solve this problem, you need to use a process called **annealing**. Annealing is making metal soft again through the application of steady heat. The atoms in the metal are brought back into alignment, restoring its workability.

Sampler Square 5: cont.

WORK-HARDEN YOUR TILE

STEPS

1. Place the tile on the bench block and use a chasing hammer to lightly tap it. The strikes should leave no marks; you are simply compressing the metal together, not texturizing. Though texturizing also work-hardens metal.
2. Tap the entire tile until the piece has hardened. Note how hammering on soft metal will make a sound like a thud. As the metal starts to work-harden the hammering sound will sound more like a ping. This sound means it's time to anneal. You can anneal as many times as you need. This will not harm the metal quality.

ANNEAL YOUR TILE

3. FIG.01 - Start by making a heavy mark across the tile using the permanent marker. This mark will fade when the metal reaches annealing temperature, letting you know that your metal is heated sufficiently.

4. FIG.02 - Place the tile on the kiln brick. Slowly sweep the torch flame over the metal. The metal should glow a dull red after about 45 seconds. Maintain this temperature for about another minute. The permanent marker should fade around this time.

5. After the marker fades, heat for another 20-30 seconds. Turn off the torch and let the metal cool for a few moments. Carefully pick up the metal with a soldering tweezers and quench it in water.

6. Finally, rub the tile with a Pro Polish Pad and Polishing paste. This will not remove fire scale but will make the surface of the fire scale smooth and shiny.

