Why don't we use aluminum for bearing surfaces?

Aluminum is a very light material, each to machine, and relatively low cost. However, it is an interesting material when used in composites. Aluminum is difficult to bond to. It oxidizes very very quickly, forming a very thin layer of aluminum oxide that will not bond to epoxy. 30 minutes of exposure is enough to prevent bonding. Because of this, aluminum requires a very strict procedure for cleaning, scratching, chemically etching, and finally coating with epoxy, prior to bonding. We've decided that the potential for delamination is too high of a risk when using aluminum in the bikes.

Because it is relatively soft for a metal, Aluminum is easy to scratch or dent. This causes problems when you install your head set cup or bottom bracket. The standard solution for a dented aluminum bearing surface is to use a facing tool to remove the burr, an expensive tool available from Park Tool, and carried in well-equipped bike shops. However, a facing tool would cost more than the rest of tools necessary for the kit, and not in line with our vision of making bike making as accessible as possible.

Steel is much more consistent to bond to, and is resilient enough to stand up to some aggressive handling during assembly of the bike.

NOTE: Steel tubing has always been a placeholder for us. We have an ongoing development project to replace steel tubes with natural fiber composite tubing. This will be a huge improvement to the bikes in terms of cost, ease of manufacture, and environmental impact.