



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Todd M. Schenk	Project Number 23097
Project Title Breaking Bricks and Building Better Ones	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment was to determine if it is possible to make a lighter yet stronger brick than one made of ordinary concrete. My goal was to modify the curing technique and the ingredients of the bricks to determine if less weight per brick could be achieved while improving tensile strength. I used cost analysis to show the price of making the bricks better.</p> <p>Methods/Materials Four batches of bricks were made. The first batch was ordinary dry cured concrete that served as my control group. The second batch was ordinary but water-cured concrete. The third was made of cement, Perlite, and fiber. The fourth was made of cement, Perlite, fiber, and metal rods to serve as rebar. Every brick was weighted and then broken on my "Brick-Breaker." A 2000lb forklift pallet scale was used to measure the breaking strength of each brick.</p> <p>Results Water curing doubled the strength of the concrete bricks but did not reduce weight. Substituting Perlite and fiber for the coarse aggregate and sand of concrete significantly reduced the weight of each brick and substantially improved each brick's tensile strength. Adding rebar increased the strength of each brick even more, with almost no increase in weight.</p> <p>Conclusions/Discussion By modifying ingredients combined with cement to make bricks, lighter and stronger bricks can be achieved. These better bricks greatly improve structures and help save the backs of masons everywhere. Even though these improvements are more expensive, they are well worth the investment.</p>	
Summary Statement My project was to see if it is possible to make a lighter and stronger brick.	
Help Received Uncle supervised me building my breaker and brick forms.	