



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Erika Marie C. Go</b>	<b>Project Number</b>  22010
<b>Project Title</b> <b>Brickwork: The Effect of the Size of Sand Particles in the Strength of a Concrete Brick</b>	
<b>Objectives/Goals</b> The objective is to find which size of sand particles would make a concrete brick stronger using silica sand #30 (finer sand), and silica sand #18 (coarser sand). <b>Abstract</b> <b>Methods/Materials</b> There are two specific tests that I did. One would be the compression test and the other would be the durability test. In the compression test I placed each brick into the compressor, and compressed the brick until it broke in half. In the durability test I took a ladder and placed it half a yard away from a rock. I climbed up the ladder (carefully). Once on the second step to the top of the ladder, I dropped the brick. After doing so, I record results, and repeat the same process again. In all 182 bricks were tested and three different brick types were used. Bricks contained silica sand #18, silica sand #30 or both silica sand #18 and #30. <b>Results</b> In the compression test, it turned out that the coarse sand bricks containing the silica sand #18 was stronger than the silica sand #30, the finer sand bricks. In the durability test, the bricks containing the silica sand #30 had more broken pieces than the bricks containing the #18 silica sand. <b>Conclusions/Discussion</b> In conclusion the bricks containing the silica sand #30 was the weakest and the bricks containing the silica sand #18 was the strongest. As for the bricks with both the silica sand #18 and #30, it was in between. The silica sand #18 may have been stronger because during the curing process the bricks didn't dry as quickly as the bricks with the finer sand (#30).	
<b>Summary Statement</b> I made concrete bricks using fine sand and coarse sand to see which silica sand size would make a concrete brick stronger.	
<b>Help Received</b> Ms. King provided this opportunity and materials needed, Don Phillippe to help make bricks, Skip for information, San Diego Equipment Rentals INC. rented equipment needed, RCP the wood needed, The Freeform Company for information, Home Depot the silica sand	