



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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<b>Project Title</b> <b>Seismic Bearing</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of our project is to determine if putting base isolators in the foundation of buildings would decrease the displacement of the building, making it a safer environment for people during an earthquake. We hypothesize that putting base isolators in the foundation of buildings would decrease the displacement of it.</p> <p><b>Methods/Materials</b> We used particleboard for the floors of the building, threaded rods for the columns, bolts to attach the floors to the columns, and springs for the base isolators. To simulate an earthquake, we taped six batteries onto a rotating wheel attached to a motor and adjusted it to hit the side of the table, which the building was on. This way, it was the same magnitude earthquake from one trial to another. We measured the displacement by taping a plain poster on the wall behind it, which had centimeter divisions. We turned on the machine and tried reading the number of divisions. We also tried putting pencils on the edges of the building to mark the poster. Both these gave the same result, so we recorded it in our notebook. We wanted to see if base isolators would work in all conditions, so we also put weight on the building and recorded the results.</p> <p><b>Results</b> Our hypothesis was correct. The building with base isolators in its foundation was displaced less than a building with a conventional foundation. We also observed that the base isolators work when weight was put onto the building. When the weight was put onto the structure, the displacement of it was less both with and without base isolators.</p> <p><b>Conclusions/Discussion</b> We found that base isolators decrease the amount of displacement of the building and are a good way to protect people during an earthquake. We concluded that the reason why the building with more weight was moving less was because since it was heavier, it needed more force to move it. Since the force was the same, the heavier building was moving less than the lighter building.</p>	
<b>Summary Statement</b> We want to find a way to create a safer environment for people during an earthquake.	
<b>Help Received</b>	