



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Brian M. Sussex	Project Number J0225
Project Title The Survivability of High Rise Structures in Earthquakes	
Abstract Objectives/Goals My objective was to find out which types of building techniques in skyscrapers withstand earthquakes the best. Methods/Materials Four different miniature skyscrapers were constructed out of spaghetti and glue. The four different kinds of skyscrapers were one with exterior uprights, one with exterior uprights and cross bracing, one with exterior uprights, cross bracing and interior uprights, and one that was round, or an octagon, with perimeter uprights and cross bracing. I tested each structure on a shake table that had ten different speed variables and was made out of wood, rubber bands, and a motor to simulate an earthquake. I would test each structure for forty seconds on each speed variable. If the structure did not collapse I would test it on the next speed variable. I would then record which structure was able to withstand the highest speed setting. Results My results were that the structure with just perimeter uprights made it to 1st power setting, the structure with perimeter uprights and cross bracing made it to the 8th power setting, the structure with perimeter and interior uprights and cross bracing made it to the 9th power setting and the round structure with perimeter uprights and cross bracing made it to the 10th power setting. Conclusions/Discussion My conclusion is that the round building with perimeter uprights and cross bracing was able to withstand the most amount of shake from the shake table. I think it performed the best because the strongest parts of the buildings were their corners and the round building had eight corners because it was an octagon.	
Summary Statement I was testing which types of building techniques in skyscrapers withstand earthquakes the best.	
Help Received Science teacher: Dr. Dunn helped with experiment, Dad: Greg Sussex helped conduct experiment	