



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Coleman E. Baker	Project Number J1901
Project Title Deflection Detection: Wood That Stand?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Objective: The objective of this project was to see if pressure treated and fire treated wood were as sturdy as untreated wood and to determine whether chemically treated woods would make a good building material. My hypothesis was that untreated wood would be sturdier because it has not been treated with chemicals, which might cause chemical changes in the wood.</p> <p>Methods/Materials Methods and Materials: A stand was constructed from various 2 by 4 boards and pieces of plywood. A hole was drilled in the stand for the dial indicator. Pipes were nailed to the top of the stand to provide place for the test wood to rest. The untreated Douglas fir wood was cut into sixteen equal pieces and eight of those were sprayed with Fire Stop II fire retardant spray. The pressure treated Douglas fir wood was also cut into eight pieces the same size as the other wood samples. Each of the 24 pieces of wood were weighed and were ready for testing. The wood samples were then placed, one at a time, on top of the pipes so that the wood barely touched the dial indicator. The dial indicator was set to zero. A weight was placed on top of the wood at the center of the wood sample. The dial indicator's probe was pushed down, and I recorded the reading of the deflection.</p> <p>Results Results: The pressure treated wood had the least amount of deflection and was the densest of the wood samples. The pressure treated wood had an average deflection of 94 mm. The flame retardant wood, which had the most deflection, had an average of 112 mm. The untreated wood had an average deflection of 110 mm.</p> <p>Conclusions/Discussion Conclusion: My conclusion is that the pressure treated wood showed the least deflection. When the chemicals were added to the wood, to protect it from fire and weathering, it did not significantly affect the amount of deformation under stress. The variation in stiffness was so small; it would probably not have any effects when used in the construction of homes or buildings. My</p>	
Summary Statement My project tests deflection of different types of chemical treated wood to find which is the sturdiest.	
Help Received Parents helped purchase materials and supervised the building of the device.	