



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristen J. Jundt</b>	<b>Project Number</b> <b>J1114</b>
<b>Project Title</b> <b>Moisture Migration: What Effects Do Punctured Barriers Have on Moisture Migration?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> For many years people have had problems with mold and various moisture problems beneath floor coverings. I have found that any penetration in vapor barriers will allow water to pass through and possibly cause serious problems. Through my project I wanted to find what effects different penetrations in vapor barriers have on the rate of water vapor migration.</p> <p><b>Methods/Materials</b> During my project I used buckets filled with three fourths gravel and a plastic Ziploc baggie as the vapor barrier with a penetration in it made by one of various cutting tools. Water would then pass through the barriers and into a container with a calcium chloride test kit, so that I could measure/compare the weight difference from before and after the test.</p> <p><b>Results</b> Through my project I proved that even a sealed barrier still allows some, but very little water to pass through. A barrier with an unsealed slice or overlap in it would allow a little more water than a sealed barrier to pass through. However, I also found that a barrier with a hole in it was almost useless letting a little less water pass through than the buckets which had no vapor barrier (my control).</p> <p><b>Conclusions/Discussion</b> My experiment showed me that having any penetration in a vapor barrier could potentially cause serious moisture problems. Because contractors are pushed to meet short deadlines for project completion it is likely that penetrations would be made in vapor barriers during construction. This problem has and can cause problems with mold, mildew, or even the dissolving of flooring glue. Creating sky-high prices for homeowners to repair any of these damages.</p>	
<b>Summary Statement</b> My experiment proved that any unrepaired vapor barrier penetration can cause serious moisture damage to floor coverings.	
<b>Help Received</b> Hugo Kevorkia gave me advice to help further my experiment; Dad helped me perform experiment; Ryan Privett gave me advice for my project; Joel Stokes gave me suggestions for my experiment; the moisture test kit company gave me calcium chloride test kits at a reduced price.	