



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Gabriel J. Guerra</b>	<b>Project Number</b> <b>S1199</b>
<b>Project Title</b> <b>Dude, There's Still a Garden on Your Roof! A Second Year Study on Rooftop Gardens and Their Effects</b>	
<b>Objectives/Goals</b> I believe that using a rooftop garden on top of a household will keep ambient and internal temperatures close to or below daily temperatures- due to the soil medium, moisture, and vegetation- as opposed to the temperatures of conventional dark tile roofs found on households.	
<b>Abstract</b> <b>Methods/Materials</b> A scale one cubic foot section of a flat roof is to be constructed in order to create a sample model for the changes in temperature. A rooftop garden's membrane, soil, and vegetation are to be incorporated into the model. A scale one cubic foot section of a typical gable roof is to be constructed in the same matter but should reflect the 4/12" slope of a roof and use shingles. The tests should be taken to reflect the internal temperature of both models when testing and also the ambient temperature above the models. They should be taken with a temperature probe and a graphing calculator and recorded. Materials: 2" x 4" x 8" Boards, Saw, 3" Nails, Hammer, Hot Glue Gun, Scissors, Graphing Calculator, (3) 1 sq. ft. Stone Tile, 2" x 12" x 24" Air Filter, Cardboard, Composite Tile Shingles, Soil & Vegetation, Temperature Probe	
<b>Results</b> The results of the tests show that the incorporation of rooftop gardens do actually help in reducing temperatures or keeping them at a moderate temperature. When testing on cloudless days in direct sunlight, the model with the rooftop garden increased and also decreased slightly in temperature. The results were about 0-3 °F above or even below the temperature for the hour. When testing on cloudless sunny days, the model with the composite rooftop increased greatly in temperature. The results were about 0-9 °F above the temperature of the hour.	
<b>Conclusions/Discussion</b> By using rooftop gardens, temperatures are affected in a positive way as the temperature decreases within individual households as well as the overall temperature locally due to the decreased ambient temperature. The tests showed that temperatures are closer to the daily temperature when using rooftop gardens on the tops of houses as opposed to conventional composite rooftop houses.	
<b>Summary Statement</b> The objective is to determine how houses with rooftop gardens can be modernized to incorporate additional green practices in addition to the lowering of temperatures in order to implement a lessened impact on the environment.	
<b>Help Received</b> Mother took temperature tests	