



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Alyssa R. LoGalbo	Project Number J1315
Project Title Testing the Radiation Shielding Potential of Residential Walls	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my science fair project is to determine the radiation shielding potential of residential walls; how well residential walls protect from gamma radiation.</p> <p>Methods/Materials Using a radiation source (Tc-99m), a survey meter (Ludlum model 3-98), and a home-made caliper, I measured the attenuation and thickness of various walls. I took a second measurement at each location without the wall. I calculated the transmission ratio factor, percent change and HVL (Half Value Layer) for each wall and analyzed the results to see how well the walls shielded the radiation.</p> <p>Results Some residential walls blocked greater than 50% of the radiation and had relatively small Half Value Layers (10-20 centimeters thick). The walls with standard 2x4 wood construction performed the best of residential walls tested.</p> <p>Conclusions/Discussion I found that walls with the most common type of construction - 2x4's with dry wall - shielded greater than 50% of radiation projected on them. This was a better than expected result and leads me to conclude that residential walls of this nature have a fairly high shielding potential against gamma radiation.</p>	
Summary Statement This project determined how well the walls in our homes protect us from gamma radiation.	
Help Received Mother helped set up board, Dr. LoGalbo acquired & supervised the handling of radiation source, Dr. Weidlich helped with HVL fomula	