



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) John D.M. Olson	Project Number J1419
Project Title Comfort vs. Wall Thickness	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This original project idea was conceived when I visited a beautiful glass building that used shades inside to cover the glass walls during the midday. I learned that although those glass walls gave a clear view of the city, it did not help with the heat. Therefore those shades were used. Afterward I was curious to know which wall type provides the most comfort. My hypothesis was that the thicker the wall is, the better the comfort level is. I performed 15 experiments twice a day over 12 days and measured inside temperatures while heat passed through glass, stucco and wood siding walls. The tests were also performed with and without the roof with R-30 insulation to determine the effect of using the insulation in the inside temperature of the room. During the tests, the temperature rose much more quickly inside glass walls as compared to stucco and wood siding walls. The conclusion is that wood siding walls with R19 insulation provide the most comfort.</p> <p>Methods/Materials 3 pieces of 1/8" thick, glass pieces, plywood, R19 fiberglass insulation, stucco, screws and nails.</p> <p>Results Wood siding walls with R19 insulation provide the most comfort.</p> <p>Conclusions/Discussion The thicker and the less transparent the wall is, the more comfortable the inside is.</p>	
Summary Statement This project explores how wall thickness contributes to the human comfort level inside a building.	
Help Received Wall designs were reviewed by the architect, Richard Gould. Everything else was solely researched, built and tested by me.	