



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

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Project Title Fire Away: A Comparison of Supplemental Fire Protection Methods for Wood Sided and Fiber Cement Sided Homes	
Abstract Objectives/Goals Since it is not practical or feasible for all homeowners to change their homes' siding materials, what is the most effective temporary method of making these siding materials more fire-resistant? If we coat a wall with fire-resistant gel, then it will be more fire-resistant than the wall being protected with sprayed water. Methods/Materials I will be using lumber, wood siding, Hardie Board, garden sprinkler, fire resistant gel, and a propane torch. A. Using the lumber, build the frames that the building materials will be attached to. Attach the different siding materials to the frames that were built. Using the propane torch apply fire to each sample for 20 minutes, recording temperature and condition each minute. After 20 minutes remove the torch and record temperature and condition at 1 minute intervals for 5 minutes. B. There are 12 sample, six with wood siding, and 6 with hardie board. 3 of each type will be sprayed with water, and 3 will be coated with fire resistant gel. C. The measurements taken were the temperature of the front and back of the samples in degrees fahrenheit. A measurement is taken each minute. Results Both the wood siding and Hardie board siding withstood the fire when water was sprayed onto the siding during the exposure to fire. When the fire resistant gel was used the samples did not fare as well. Two of the three Hardie board samples resisted the fire with no damage to the inside structure. The third sample had some minor fire damage to the inside structure. The wood sided samples all burned completely through when the gel was used as the protection. The fire on the surface of the wood samples did not spread as much as the control sample tested without water or gel. Conclusions/Discussion My hypothesis was not correct. The water actually did a better job of protecting the structure than the fire resistant gel. The water stopped the fire from spreading as well as protecting the back from fire damage, but the fire-resistant gel was unable to stop the fire from penetrating and causing fire damage on the back. This result is most likely the because the water provides a continuing source of cooling for the surface where the gel resists fire well for a few minutes but eventually burns away allowing the fire to penetrate. Both methods of structure protection are superior not protecting the surfaces.	
Summary Statement I am testing to see which method will be most effective in protecting a home with siding that is not fire-resistant.	
Help Received Mother are father helped supervise testing; Father helped transport and purchase required materials.	