

Aaliyah Garcia

*Wildland Firefighter Defense System: Phase III*

Since I was a little girl, I have always looked up to firefighters being that my father has been a volunteer firefighter in my home town for nearly twenty years. After years of being scared for my father's life and after learning about the 2013 Yarnell Hill Fire, I knew a change had to be made in the safety equipment we service to the men and women who protect our communities. This year my hypothesis was "If I combine Temptrol, Pyrogel XT-E, and a carbon fiber hybrid mesh together, then there will be a low chance of overwhelming heat to transfer through to the person the shelter is protecting as well as provide a structure light enough with the materials woven over to allow easy carry and deployment for wildland firefighters to carry through tough terrains". The steps I took to prove my hypothesis was to cut a one 6x6 inch square of each fabric, carbon fiber hybrid, Pyrogel XT-E, and Temptrol, to find the final materials I plan on working with. Along with materials testing, I conducted research to start the structural process of the updated fire shelter. I concluded that by rearranging the Temptrol and carbon fiber hybrid material, less heat was able to transfer to the bottom surface under high temperatures for five minutes.