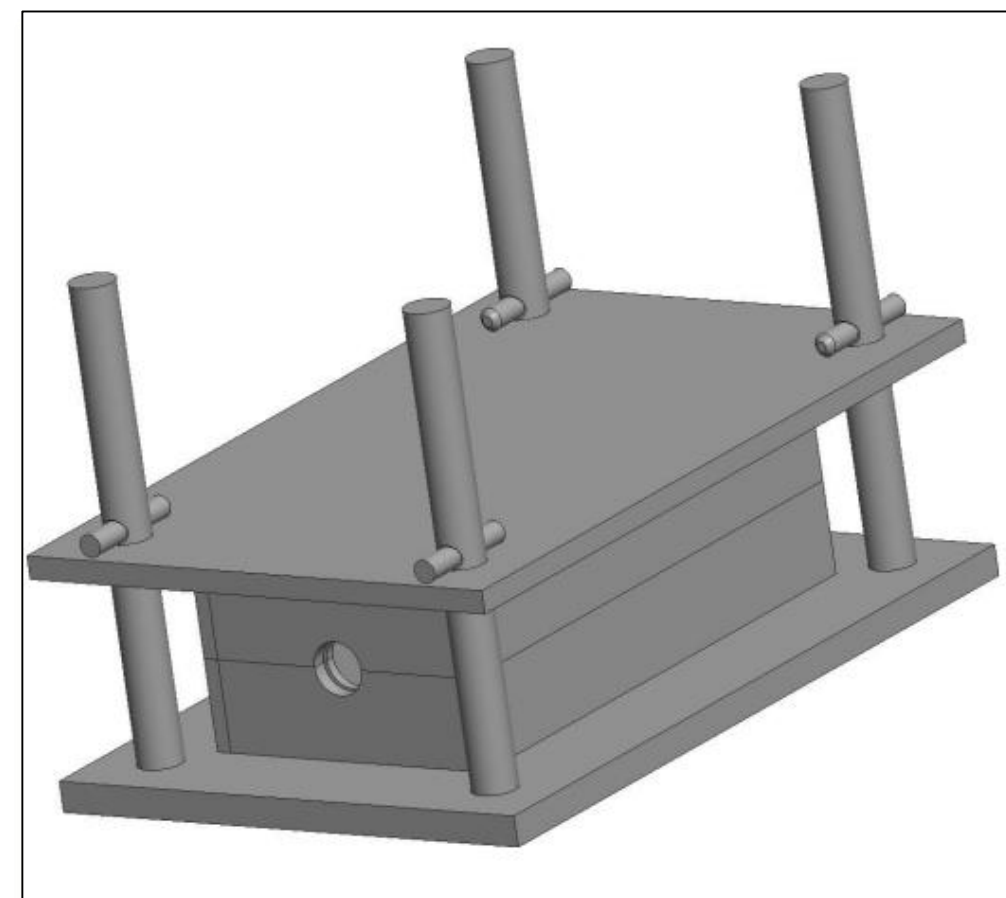


Outreach Team A - Building Blocks

Stephen Barnett, Jonas Fuglas, Michael Graff, Michael Knott, Julio Cesar Violo
 Dr. Beshoy Morkos, Dept of Mechanical Engineering, Florida Institute of Technology

Problem Statement

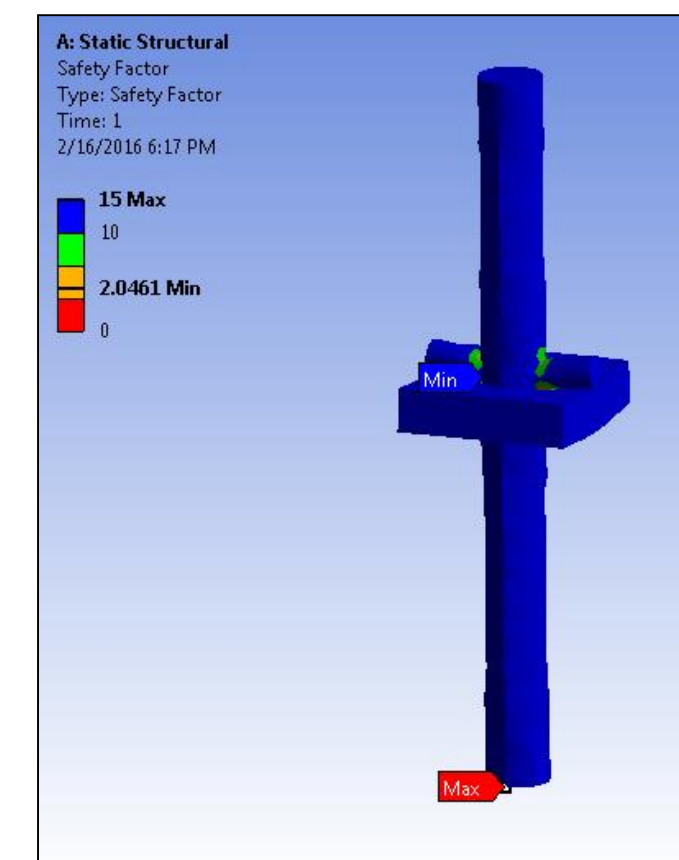
After the occurrence of natural disasters in developing countries, there is a large need for shelter. The primary form of shelter that is distributed during the early and medium recovery phase is tenting. People must live in this temporary housing until the reconstruction of homes (reconstruction begins one to two years after the occurrence of a natural disaster). The purpose of this project is to shorten the overall recovery time for people in developing countries after natural disasters by limiting or possibly eliminating the time spent in the temporary tenting that is distributed. Therefore, this team is designing a system that will enable the production of semi-permanent structures in developing countries post natural disaster.



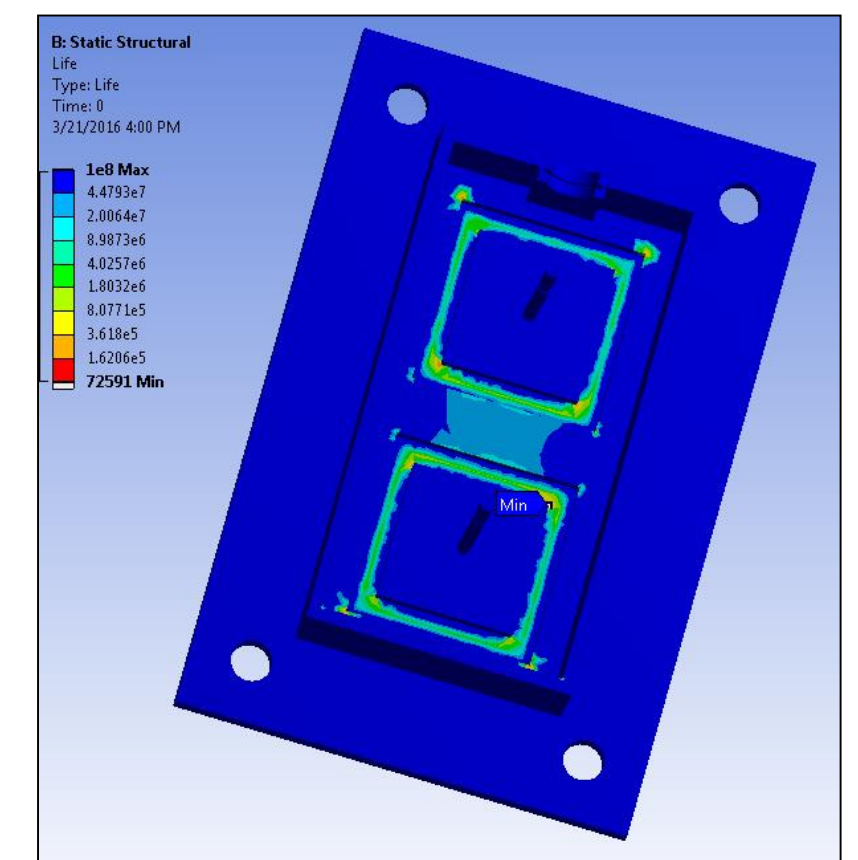
Construction Cost

This system can construct a 100 square foot house for **\$21.90** in less than one day based on mold, preform and electricity cost.

Mold Analysis

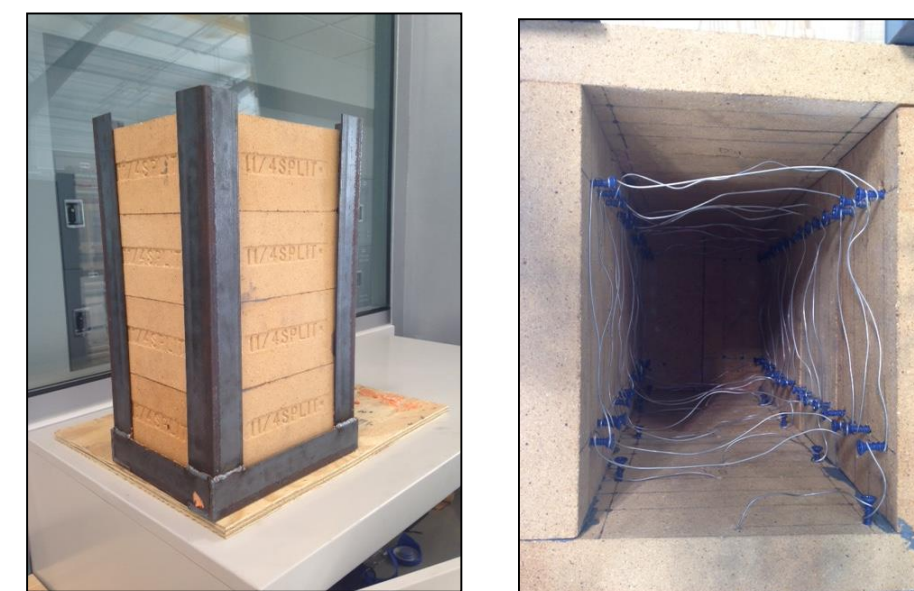


Factor of Safety



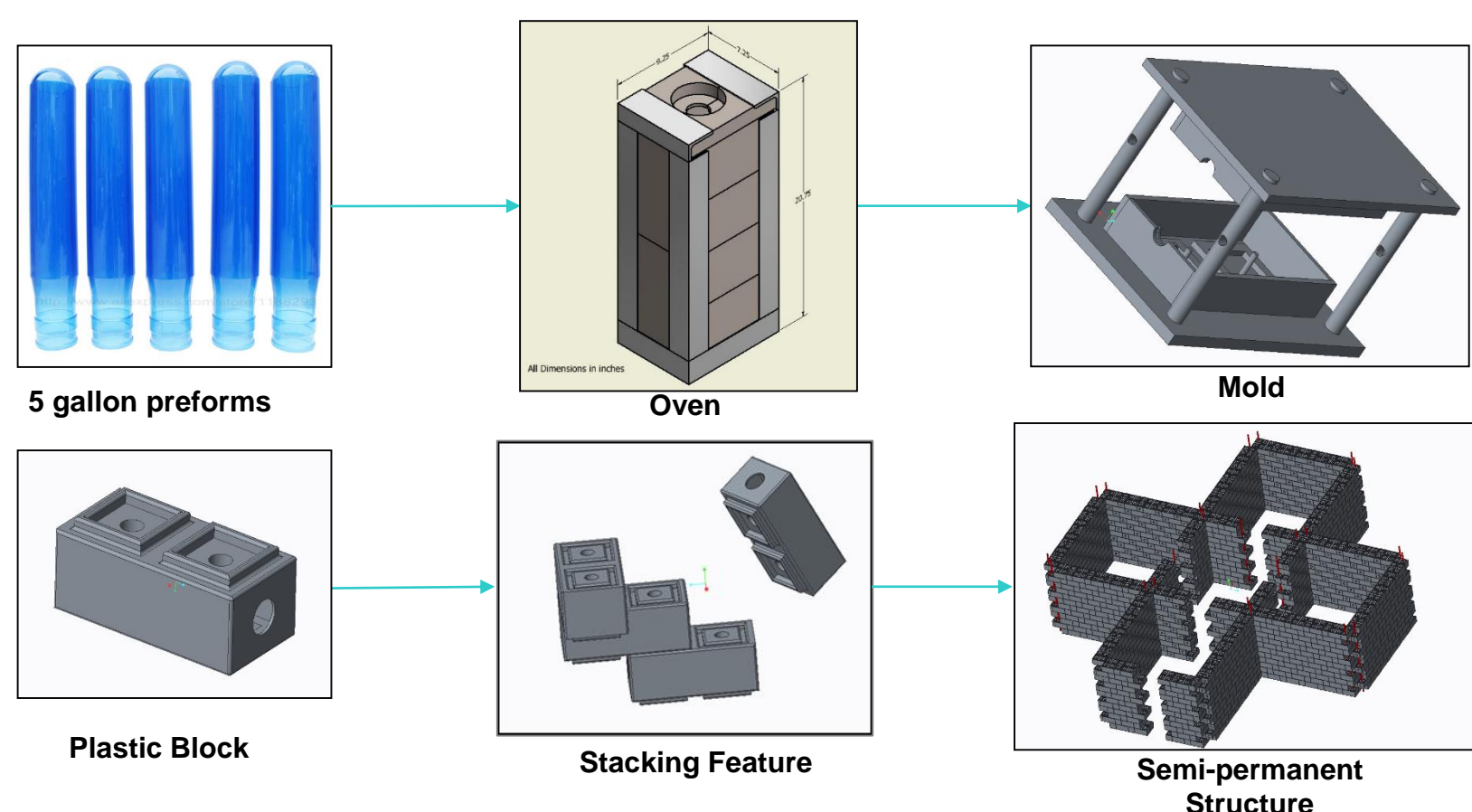
Maximum cycles

Heating Device - Nichrome Oven

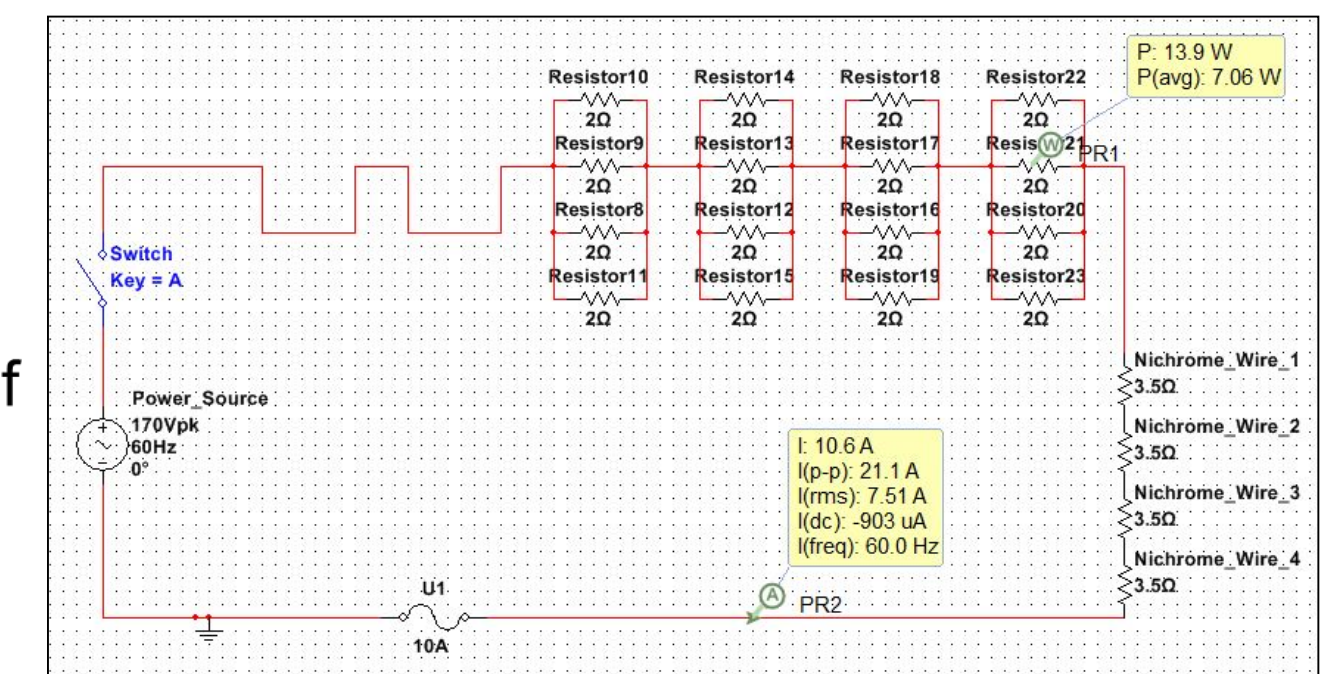


Utilizing 18 gauge Nichrome wire as a heating element, the oven can reach a maximum temperature of 1177°C. To match the heating time with the time it takes to blow mold one block (90 seconds), the oven will maintain a constant temperature of 375°C.

System Overview



The oven uses a simple circuit shown to the right. The circuit consists of sixteen 2 Ω 10 Watt resistors to reduce the power and regulate the temperature of the oven to 375°C.



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