

Zach Cohen

Building Final Report

In our 8th grade science class this year, each of us was put into a group and had to design a building that could withstand a shake-table simulating an earthquake and withstand a load of a brick for 30 seconds. Bracing, a strong main frame, and durable yet flexible materials.

For our materials, we used hot glue and super glue to keep everything in place because they are very strong binding agents. We used dowels and popsicle sticks for bracing and the construction of the mainframe and a bottom of a plastic paint container for the top, so it is flat for balancing a brick on top. We covered the top with duct tape to strengthen it. We connected the dowels to the the roof, by first hot-gluing them, and then wrapped them with masking tape and with duct tape.

For our project, we built a pyramid shaped building that is flat on the top to withstand heavy loads. We used the pyramid shape so it could not fall because it tapered and the base is wider than to top, also the pyramid shape allows us to have a flat top for the brick. We also used dowels as our main frame and for bracing- it made the building much stronger by supporting the weight of the top. The washers held the dowels in place on the wooden board so the dowels would not slide. We also used a weight as a pendulum to counter the sway of the building to keep it stable. We poked a hole in the bottom of the paint bottle and put a string with the pendulum connected.

While building, we had to make many design construction decisions. We needed to design a flat top so it could balance the weight of a brick so we had to choose

something sturdy; we picked the bottom of a paint bottle. We also needed to decide if the pendulum's pros outweighed its cons. The pendulum kept banging into the dowels that were bracing the building so we wrapped the pendulum in bubble wrap for support. After that we noticed that the pendulum was still banging into the dowels, so we decided to put an empty roll of ribbon on to the string that was holding the pendulum to the roof so that it would protect the dowels from the heavy pendulum.

After we finished the building, we put the brick on top, and the building withstood it. Then we took the brick off and shook it vertically and horizontally very hard and the building reacted just how we envisioned it- by swaying slightly but still sturdy enough to be strong. Also when we went to UWM to use their shake table and vibration table our building did not budge at all.

If I could make any changes at all to the building I would not. I would not make any changes to the building because it withstood many tests with no problem at all. The pendulum shook too much however but if the building had more sway the pendulum would have helped.