

You Be the Engineer Part 2

Name(s) _____ Period _____

You and your partner have been hired as the structural engineers in charge of designing a new 3-story building. There are building codes you **MUST** follow. Each floor of the building must support at least 25 grams of weight. Also, the building will be located near an earthquake fault; therefore your building must be able to withstand both small and medium sized earthquakes

You are limited to the following supplies

24 stir straws, 20 round toothpicks, 20 marshmallows, 5 pipe cleaners, and 4 rubber bands

Your building must meet the following requirements (codes)

- Must be at least 30 cm tall
- Must have 3 stories at least 10 cm tall each
- Each story must support at least 1 bag of sand (25 g) without collapsing
- A construction drawing with **measurements** and **analysis** must be submitted before earthquake testing
- To survive an earthquake test, the building must not collapse for 15 seconds after the earthquake begins. The sand bags must stay on your building.
- Research must be completed to support and provide evidence for the

Rubric

4	3	2	1	0
Excellent evidence of the group researching and brainstorming ideas to build a prototype and address building codes, materials were well thought out, group maximized use of time all of the time , all members worked well together during the engineering process. A completed drawing with all criteria included.	Good evidence of the group researching and brainstorming ideas to build a prototype, materials were thought out, group maximized use of time most of the time , all members worked well together most of the time during the engineering process. Drawing includes most criteria.	Some evidence of the group researching and brainstorming ideas to build a prototype, materials were thought out, group maximized use of time some of the time , all members worked well together some of the time during the engineering process. Drawing includes some of the criteria.	Little evidence of the group researching and brainstorming ideas to build a prototype, little thought about materials needed to build prototype, group uses little time to build prototype , members worked little together during the engineering process. Drawing includes little or none of the criteria.	Little to no evidence that students researched how to make a prototype, did not use class time wisely, did not work together to build a prototype.

- **Plan carefully**, additional supplies will not be provided
- Remember – measure twice cut once

Research:

- What are some features you need to include in your design to make it earthquake resistant?

Your drawing needs to include:

- Framework of your 3 story building
- Label where supplies were applied and the measurements
- Neat and easy to understand

Drawing of Earthquake resistant 3 story building