The Skyscraper

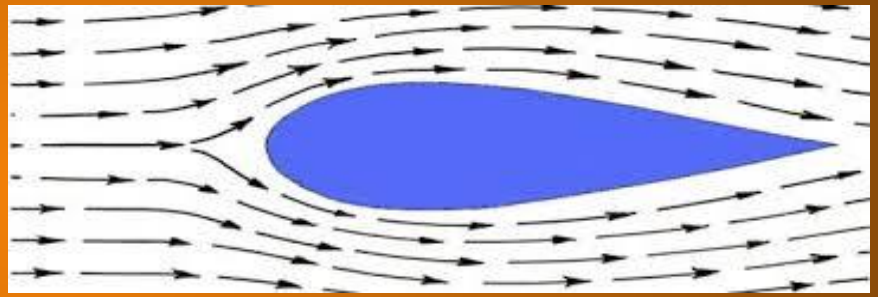
Purpose/question/Community problem being solved

Although earthquakes are rare its better to be prepared,so were building a skyscraper that can survive an earthquake , the community problem being solved is the dangers of an earthquake.Were trying to find tactics that could help the community by using tactics from the real construction team, like making the building flexible to help buildings survive earthquakes.

Background research on your project

Engineers are able to make buildings also known as skyscrapers by using many blueprints and materials and by many layers. Modern day skyscrapers are made with the first layer made out of steel,the next step is evening out the weight to even out the weight you need a steel skeleton structure,the third step is making sure the building won't fall over to do this you'll need to make aerodynamic shapes. Well have to consider nature too because during earthquake things like trees can fall over.

This is an example of a aerodynamic shape



https://theskydeck.com/how-are-skyscrapers-built/

https://kids.kiddle.co/Property_damage

Brainstorm Ideas to make the experiment happen

1. We thought about making a plane at first ,but the material part and flying part would be that much harder.
2. We came up with the idea of making a building and seeing if it could withstand a tsunami.
3. Same idea as number two but instead we do an earthquake to see if we meet California's safety structure test.

Limitations

Realworld: 500ft walls	Classroom: 3ft Clay and toothpicks
Shear walls	Cardboard,toothpicks and clay
Earthquake	Jello
Strong walls	Clay,toothpicks and cardboard
Steel	Clay
Skeleton structure	Cardboard and clay
Aerodynamic shapes	Toothpicks and clay balls

Any changes made from first idea

We thought about it and instead of doing a basic wall with cardboard we are going to do 2 cardboards attached by toothpicks and they will be 12 by 12 inch walls and clay will be the installation with toothpicks to acts as support and balance.

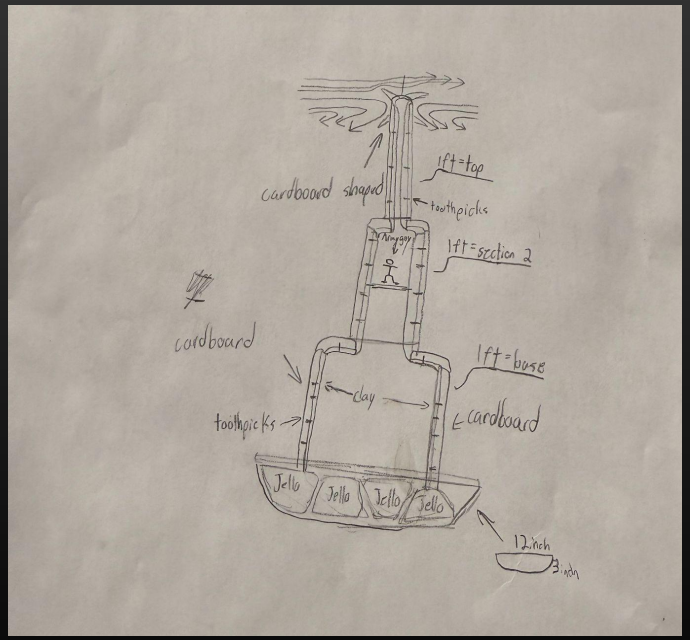
Procedure (Step by Step)

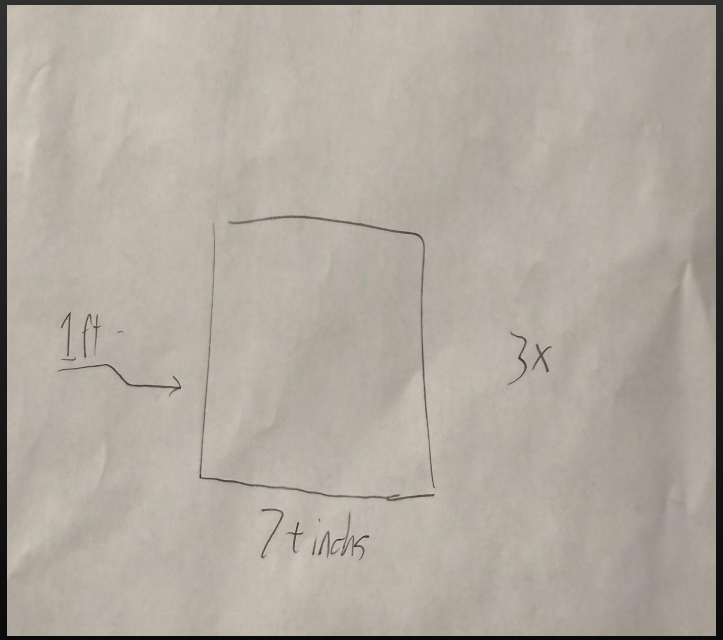
1.Add clay add make it 12x12 with a ruler to make sure it is the same size.
2.Put toothpicks on the corners of each clay-12x12.
3.Grab the cardboard and stick it onto the toothpicks that are attached to the clay.
4.Do steps 1,2,and 3 3x more times to make all the walls.
5.Put on the roof with more clay

6. In order to make the jello we will add water and refrigerate it for 24 hours
7.We shake the jello to see if our building shakes,moves,or even breaks down!

We will use the jello as an earthquake.THE END

Draw out your final idea





Materials used to create your project

1. Toothpicks
2. Cardboard
3. Clay
4. Jello
5. Cardboard scissors
6. Container
7. Army guy

Photos

This is us making our Skyscraper

Photos

Data

We checked the first two prototypes, but not the one with the plane.

We did both prototypes and we came to the conclusion that the one with reinforced walls along with clay was that main idea of this project because it was stable,reinforced, and was balanced out. We tested the skyscraper and it survived but it nearly fell with the side barely surviving the fall thanks to gravity with all the weight at the base it survived.

Was your project successful?

- Yes it was able to withstand the shaking of the building but it did have some trouble staying up.

How can you improve your project? How will the improvements help?

- We improved it by adding more modern day techniques that many engineers use today ,although we also used more everyday objects into the project to make it more possible to make.