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Period 4/5

11 November 2017

Homasote: A Gray Product with a Green Thumb

On Tuesday December 5th, my STEM High School class visited the Homasote plant in Ewing, New Jersey. While not the most beautiful of places, it was quite interesting to learn the actual process of recycling paper—a process few average people know much about.

First, we visited the "paper warehouse," as I termed it, which was an amazingly large room in which the factory workers stored their paper—2-3 weeks' worth, or 15 days. Our tour guide explained that they accept paper from a variety of places that use paper, such as offices, schools, and the like; they also take paper from other factories manufacturing paper products. The plant only uses paper from within ~150 miles, for financial reasons, and rarely uses cardboard, as cardboard is generally more profitable for them to sell than to recycle.

After discussing the origin of the materials in the product Homasote, we began a tour of the recycling process, starting with the pulping. Using a 400-horsepower blender (which I found quite impressive), paper was mixed with water and a wax additive until it became a gray mush resembling papier-mâché, and was transported using water to a mold. Once in the mold, the mush was compressed under high pressure to remove most of the water, making a sheet of wet Homasote. It should be noted that the water reclaimed from pressing the mush into a sheet is all recycled back into the process, creating what is known as a closed-loop water transport system.

When the mush had successfully been pressed into a sheet, there were just a few steps left in the recycling process. First, high-power water jets were applied to the edges of the sheet,

smoothing out any roughness that might be present around the edges. Then the Homasote sheet entered a 8×12' oven, which baked the remaining water out of the Homasote, creating a strong board. Unfortunately, this water would be difficult to reclaim, accounting for around 36,000 gallons of evaporated water every day.

Once we had completed our tour of the factory, we moved into a meeting room where we discussed some of the details of Homasote. For example, it was mentioned that Homasote is not sold in the 8×12' board that we saw produced, but in 4×8' boards that (in December 2017) sell for $29.65 apiece. To do this, a separate product refinement process is necessary, to which the newly-baked boards are transported using forklifts. Curious as to the company's dedication to production of boards vs. refinement of boards, I asked how many resources the company dedicated to each process. Interestingly, the same space is dedicated to each process, but the refinement process is more labor intensive; in other words, the company requires relatively little manpower to operate the recycling machinery, proving that the Homasote factory is an impressive feat of engineering.

Indeed, the company is involved quite regularly with a variety of different engineers, such as mechanical engineers, electrical engineers, chemical engineers, green engineers, and a variety of other different fields. As this was a trip intended to teach about the field of engineering, the discussion became a teaching moment, showing how important engineering is to production, and how there are a variety of options for young engineering students such as ourselves. Overall, I thought the trip was a fascinating example of the potential job availability in the field of engineering, and that while Homasote production may not be the field of my choice, it is certainly a process that is worth learning about.