



Nothing But Net Package Insulation

Team 5735B

For the FUTURE Foundation's Recycling Online Challenge, team 5735B constructed an innovative form of package insulation, which primarily uses the balls that served as scoring objects in the 2015-2016 Vex game, Nothing But Net. The purpose behind the product is to protect cargo when it is moved from one place to another in a box. Certain methods of keeping packages safe already exist, such as bubble wrap and packing peanuts. Our team's approach differs from these solutions in that it is of a set structure. The design features many Nothing But Net balls, all cut into hemispheres, laid out in a pattern that does not change.

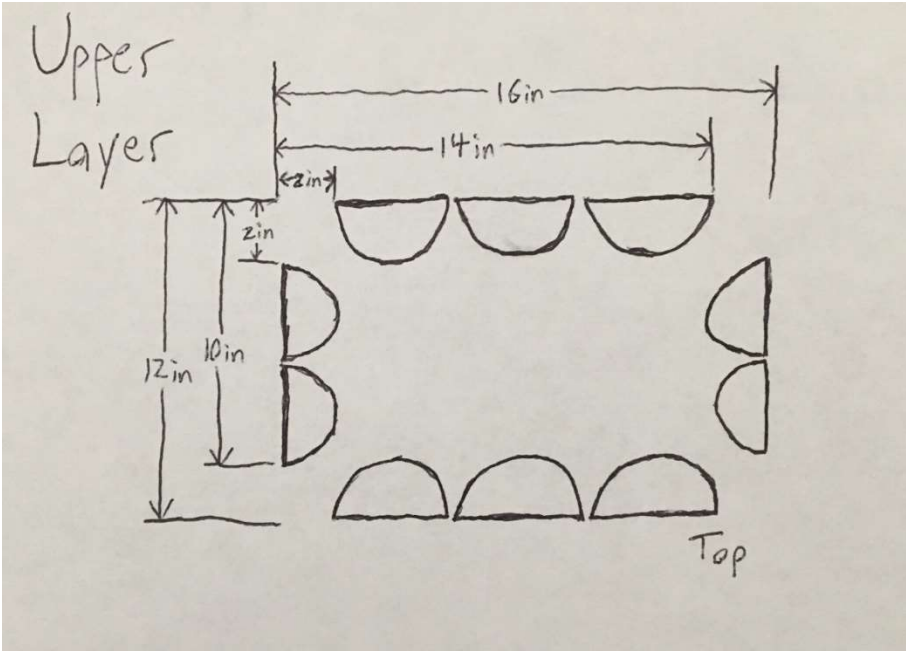
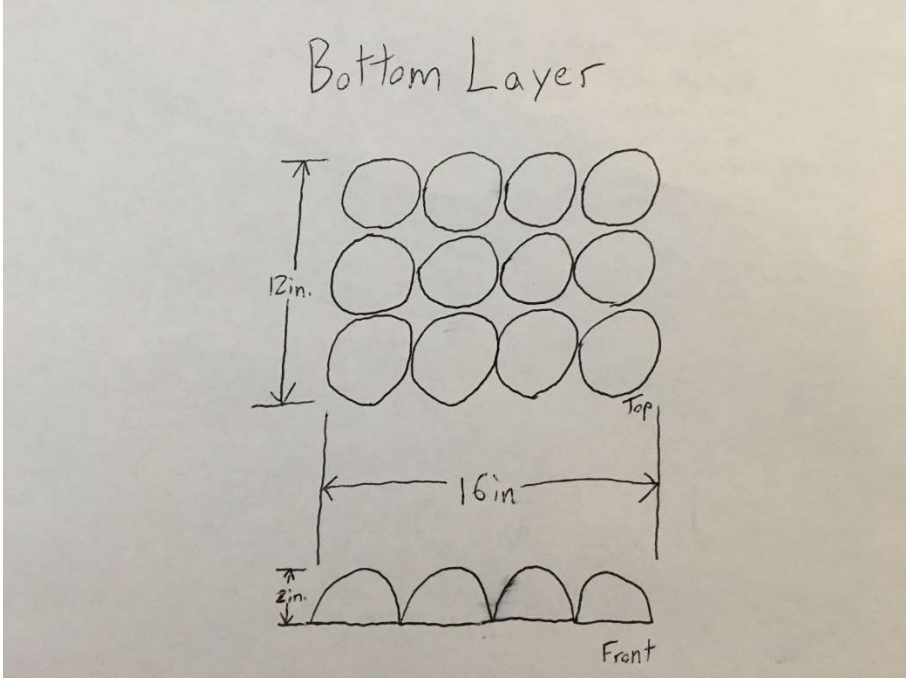
The structure includes two layers, one upper section and one lower. The latter is made of twelve hemispheres, arranged in a 4x3 grid. This provides the main cushion of the construction. Whenever a package bounces up and down, it lands on soft foam, which breaks its fall much better than a cardboard box could on its own. Because of the shape of the materials, it also allows for some oddly-shaped objects to nest snugly inside the hemispheres, thus protecting them even better.

The upper layer provides extra protection for large objects, or for objects that are being moved roughly from side to side. This layer includes ten hemispheres, wrapped in a ring around the bottom layer, approximately two inches above the bottom unit. When a box jostles back and forth, its contents collide with the sides of the box, so our team chose to create this upper layer to combat such movement with a soft, easy surface.

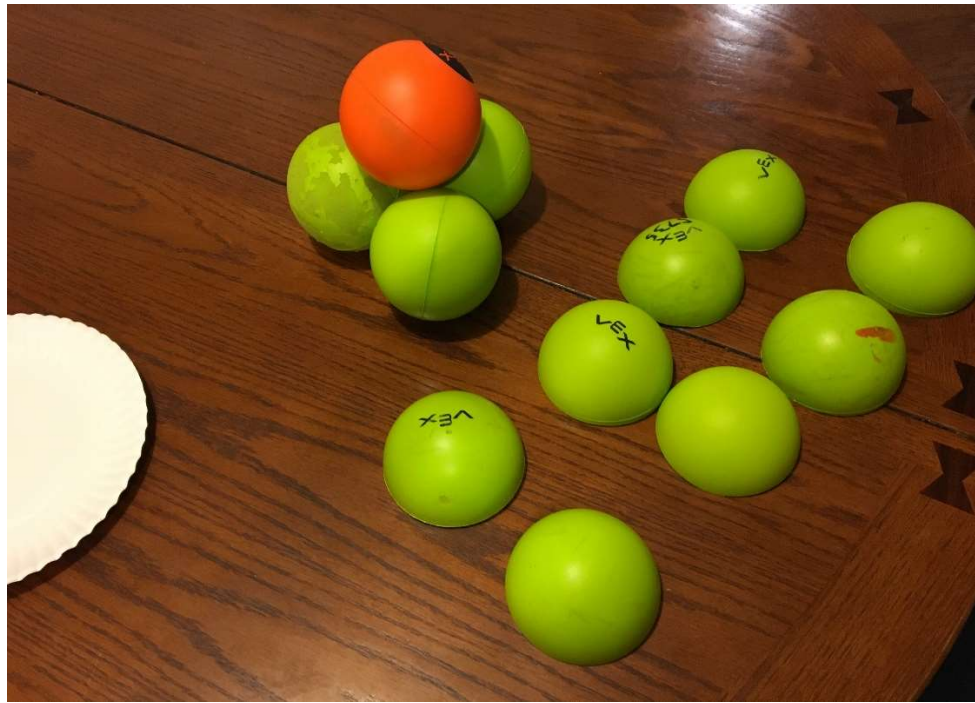
The hemispheres are put together with sheets of cardboard. The entire structure is just smaller than 16 inches long and 12 inches wide, so that it may fit in a packing box of that size, as well as any larger box. For much larger objects, it would even be possible to expand on the original design to create a larger box, using more Nothing But Net balls.

The balls in question were specifically chosen for this task because they absorb impact well, and that is the main objective of any kind of protective material. The balls themselves could not be used to create any kind of structure because of their shape, so it was determined that they should be cut in half, thus giving them a flat face by which to attach them to other flat surfaces. This also resulted in the balls being much more space-efficient, as flat surfaces always tend to be more efficient than rounded edges.

The final result of the project is a product that can easily protect glass, electronics, and other fragile materials, just as well or better than traditional packing materials, all with the added benefit of reducing waste from the previously-obsolete 2015-2016 game pieces.



Original sketches



The construction process



The finished product