

ENDS 231. Egg Container Design Demonstration

Date: During class on Tuesday, October 30, 2007

Pass-fail work

Location: 3th floor of Langford (north east side)

Problem Statement:

The competition involves the construction of a container of original design, with minimum mass and length, so that a raw egg will not break when dropped from a fixed height.

Construction teams will comprise 3 or 4 members.



EVERYONE MUST BE PHOTOGRAPHED with their competition entry by the instructor's representative. To identify each team, a sign must be made with the name of the entry in very readable block lettering. The sign is to be no larger than letter size paper.

Rules:

1. The container must allow the egg to be placed in it without using any fastener directly to the egg. This means no glue or duct tape directly attaching the egg to any device.
2. The container cannot completely surround the egg to the form of the egg. This means that wrapping the egg with any material is prohibited.
3. The container may NOT include any packaging material (bubble wrap, styrofoam, peanuts, popcorn, foam, batting, bath sponges, crumpled paper, air packets, etc.) or liquid/solid that could be spilled or splattered **or stick to the floor**.
4. The container must be CONSTRUCTED. Use of cans, boxes, baskets, buckets or any other pre-manufactured shape *cannot be used as the main structure*. Pre-made shapes can be cut up and used as elements in the constructed shape, but it still must be of original design and built by the team.
5. The empty container may have a mass no greater than 680 grams (1.5 lb).
6. A raw large egg will be provided.
7. The container must free-fall (no ropes, guides, parachutes, propellers, helium or balloons) toward a target. Aeronautically shaped designs are acceptable.
8. The egg must survive intact.

9. The length shall be taken as the longest linear dimension of the complete container, and cannot exceed 0.4 m (15.75 in).
10. The egg will be placed in the container, and you will seal or close it if necessary.
11. Each container will be massed with the egg in place.
12. The egg will be dropped straight down from the height of the railing by a team representative. No propulsion devices or throwing is allowed
13. There will be only one release, unless the instructor declares a problem with the release.
14. The container will remain where it lands until the instructor or teaching assistant moves it and opens it. **NO ONE EXCEPT THESE INDIVIDUALS WILL TOUCH THE CONTAINER AFTER IT LANDS.**
15. The instructor or teaching assistant will inspect the egg and make the final decision.

Objectives:

The primary objective of the project is to construct a sturdy structure of potentially deformable materials that will be subjected to loads of gravity, wind, and impact, and that LOOKS GOOD. The secondary objective is to work on a construction team, and produce a unique egg container. In addition, the competition will be advertised to, visible to, and scrutinized by the College of Architecture.

Grading Criteria:

1. Design Quality (60%)
 - a. Is the container within the size and mass limits?
 - b. Is the egg “free” in it’s container?
 - c. Has any packing or illegal materials been used?
 - d. Is too much material used? Are the materials appropriate?
 - e. Does it look pleasing or “cookie-cutter” like?
 - f. Has it or a prototype been tested?
 - g. Did the egg crack?
2. Construction Quality (40%)
 - a. Was the work performed at the last minute or thought through before construction?
 - b. Is sufficient quantity of material used or connections reinforced where needed such that it will not come apart (unless a programmed collapse was obvious)?
 - c. Is it painted or decorated in order to cover up any construction flaws?
3. Above and beyond (5% or more)

This section is included for innovative and creative content or quality that I have not explicitly asked for.