Drexel CoE Engineers Week

14th Annual Egg Drop
February 18, 2008
12:00 p.m.

Welcome to the Drexel University 2008 Egg Drop Competition. The competition will take place on Monday, February 18 2008 at Noon in the Bossone Research Enterprise Center Lobby. On the day of the competition all teams are required to register and weigh their devices by 11:30 a.m. Team registration is available online and ends on February 15, 2008. There is a maximum of 4 members per team. First prize is $200, second prize is $150, and third prize is $100.

For questions regarding the rules and regulations, please e-mail Daniel Lofaro, dml46@drexel.edu. Please register for the event online at http://www.drexel.edu/coe/eweek2008/Egg%20Drop.htm.

Objective:

The objective of this competition is to create a contraption that will protect and guide a Grade A large egg (egg will be provided) from the impact of a 28ft drop into a specified landing zone. The landing area will be a 15ft by 15ft square with several different circular landing zones within it, see diagram on other side. Each landing zones will have a given point value. The contraption will be dropped in the center of the landing area by the retraction of a pin by a judge, see diagram below. The team that has the most points at the end of the competition will win. Please see below for the rules and scoring for this event.

Rules:

The contraption must:

- Weigh less than or equal to 400 grams
- Fit into a 12 inch by 12 inch by 18 inch box
- Be able to attach to the release mechanism, see Figure 1
- Not contain any combustible or harmful materials or chemicals
- Be able to show that the egg did not break after each round

Scoring:

The score will be based on three criteria and the formula below.

- The Mass of the contraption in grams, denoted as M
- The location where the part of the contraption with the egg in it first lands in each round, denoted as S_1 for the score of the first round and S_2 for the score of the second round. See Figure 3
- The condition of the egg after each round, denoted as B_1 for the first round and B_2 for the second round where B=1 if the egg does not break and B=0 if the egg does break.
- $$Score = \frac{35(B_1+B_2)(S_1+S_2)}{2(M+35)}$$

Release Mechanism:

The release mechanism is made of a rod that will be no greater than 3/8 inches thick that will be held by two eye loops that are separated by a distance of one inch. The minimum vertical space from the middle of the pin to the top of the release mechanism will be 1/2 inch. The end of the pin will be connected to a rope that will pull the pin through both of the eye loops releasing the contraption. The pin will be facing north in respect to the landing zone and will be placed directly above the center of the landing zone.

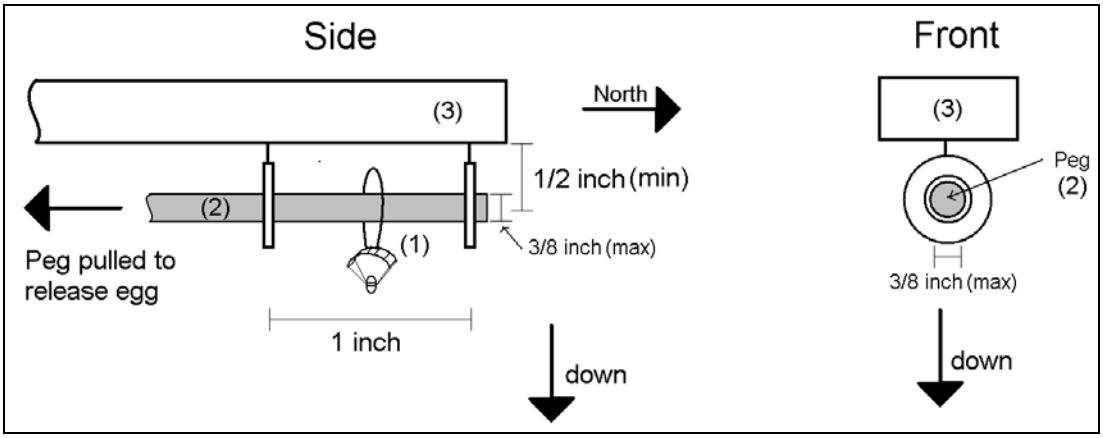

Figure 1: (1) Contraption Connected to Pin, (2) Release Pin, (3) Boom of Release Mechanism

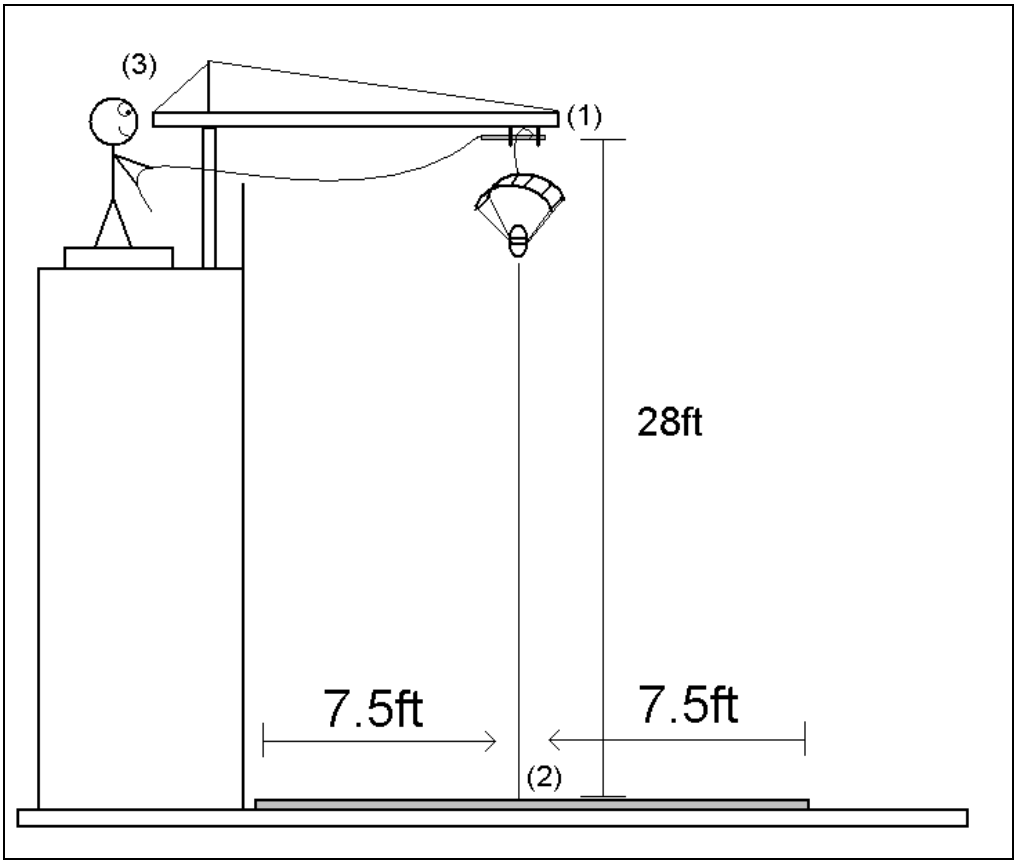

Figure 2: (1) Release Mechanism, (2) Target Area, (3) Judge

The above diagram shows the setup of the release mechanism and the drop location.

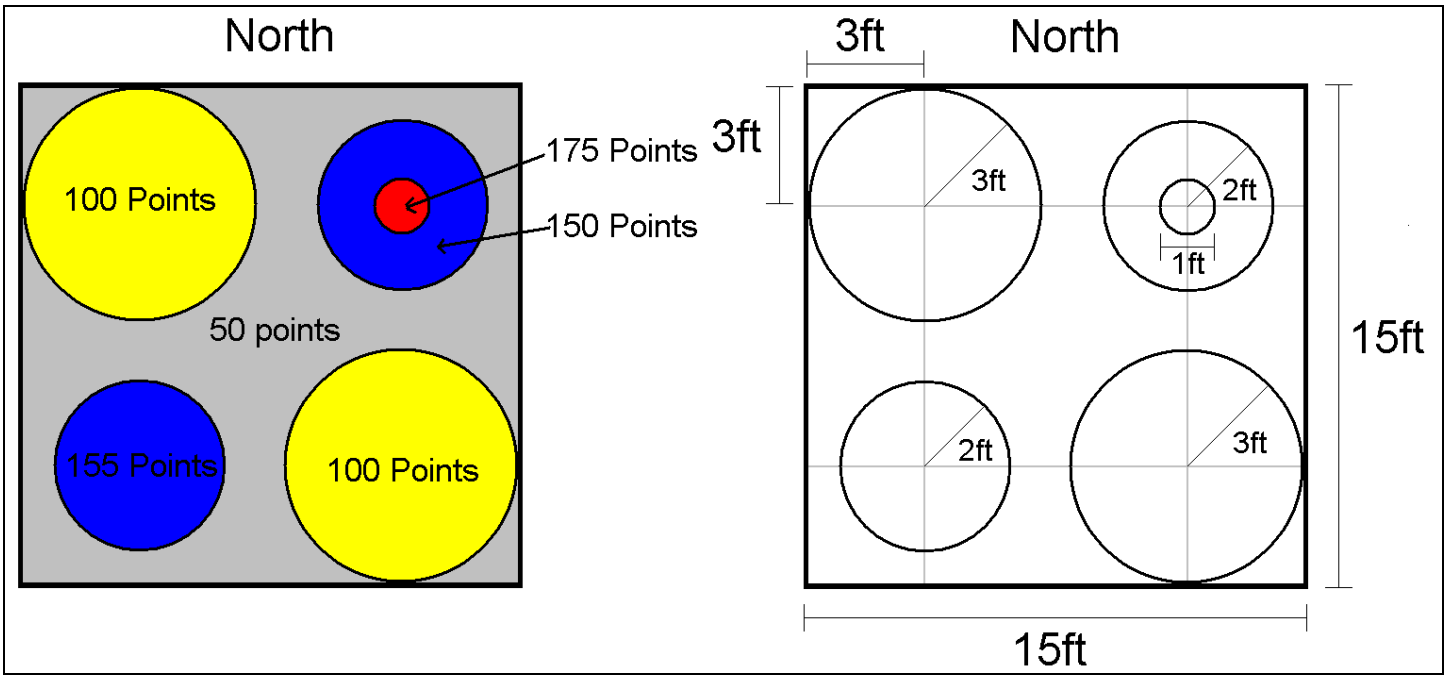

Figure 3: Target area point values and dimensions

The diagrams above shows the dimensions of the landing zones and their corresponding point values. The smallest landing zone, the one with a diameter of 1ft and a point value of 175, will be a bucket, similar to that of a 5gal bucket.