Drexel CoE Engineers Week
15th Annual Egg Glide
February 16, 2009
12:00 PM
Main Building, Great Court

Welcome to the Drexel University 2009 Egg Glide Competition. The competition will take place on Monday, February 16, 2009 at noon in the Main Building's Great Court. On the day of the competition all teams are required to register and weigh their devices by 11:30 AM. Team registration is available online and ends on February 6, 2009. There is a maximum of four (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/eweek2009/Egg%20Drop.htm.

Story Line:
International super spy, James Egg, also known as 00E (double oh ee), is being pursued by his arch rival, Dr. Spatula. James Egg commandeered a helicopter in an attempt to escape the foul flipping of Dr. Spatula. Soon after takeoff Dr. Spatula took notice of James Egg's escape and is now aiming to shoot down the helicopter. James Egg is forced to bail out of the helicopter. Luckily Q provided James Egg with a device that would allow him to survive the fall and quickly land in a safe area.

Objective:
The objective of this competition is to create the device that Q gave to James Egg. The contraption should protect and guide James Egg, i.e. a Grade A large egg (egg will be provided), from the impact of a 34 foot drop into a specified landing zone. The landing area will be a 15 foot by 15 foot square with several different circular landing zones within it, see diagram on other side. Each landing zone will have a given point value: the higher the point value the safer the landing zone will be. The contraption will be dropped in the center of the landing area by the retraction of a pin by a judge (see diagram on next page). 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 four criteria and the formula below.
- The mass of the contraption in grams, denoted as M (the egg which lands at the highest impact without breaking, wins)
- 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 time between release and contact with the target area measured in seconds and rounded up to the nearest tenth of a second, denoted as t_1 for the time of the first round and t_2 for the time of the second round

- 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.

- $$Score = 35 \frac{B_1 S_1}{\sigma_1 (M + 2B)} + 35 \frac{B_2 S_2}{\sigma_2 (M + 2B)}$$

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.
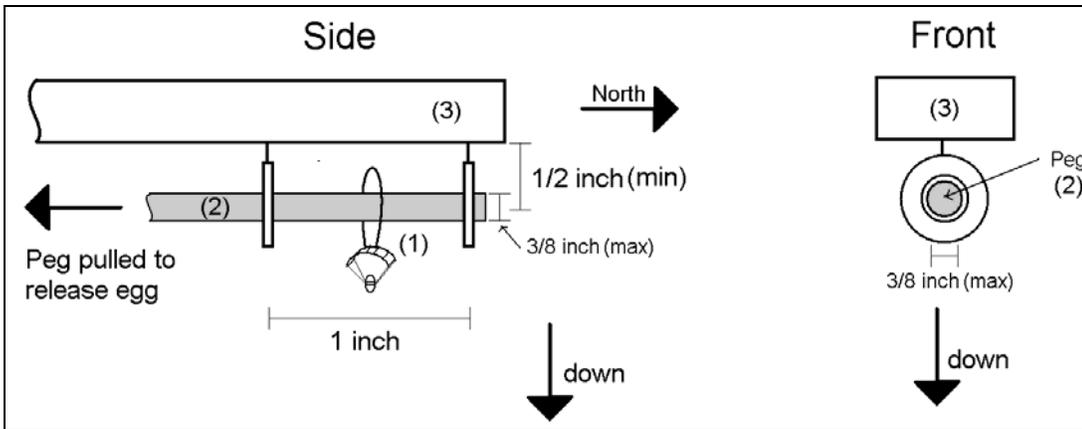

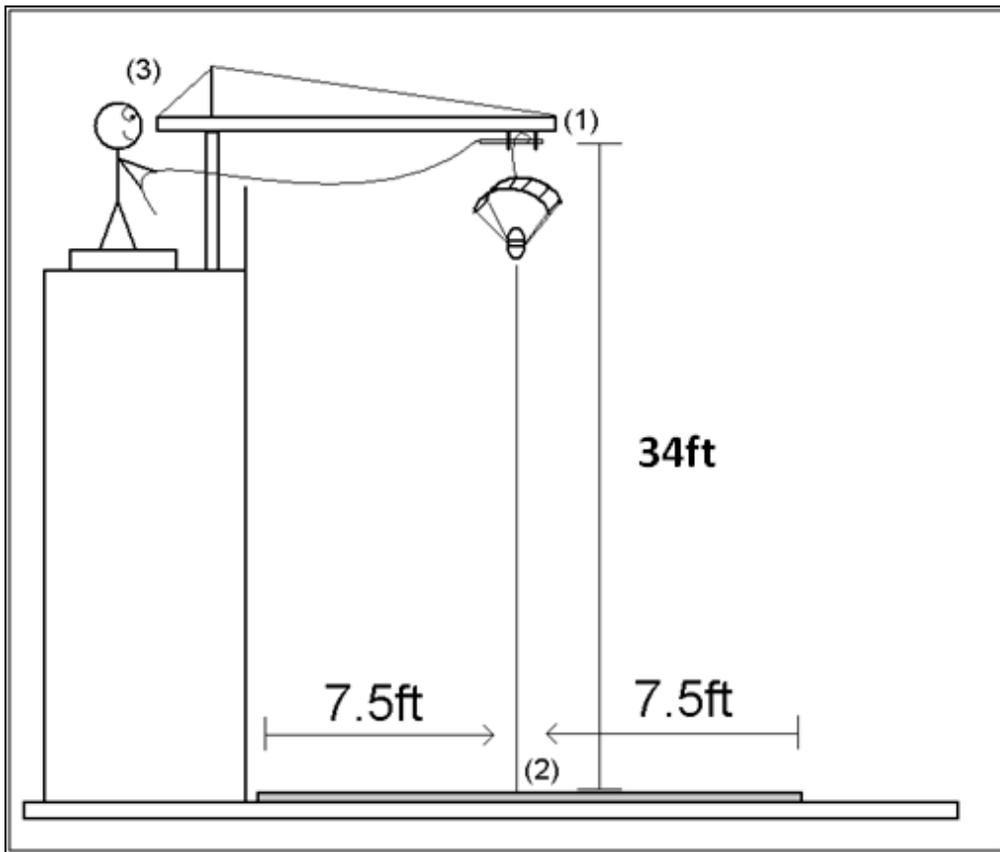Figure 1: (1) Contraption Connected to Pin, (2) Release Pin, (3) Boom of Release Mechanism

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

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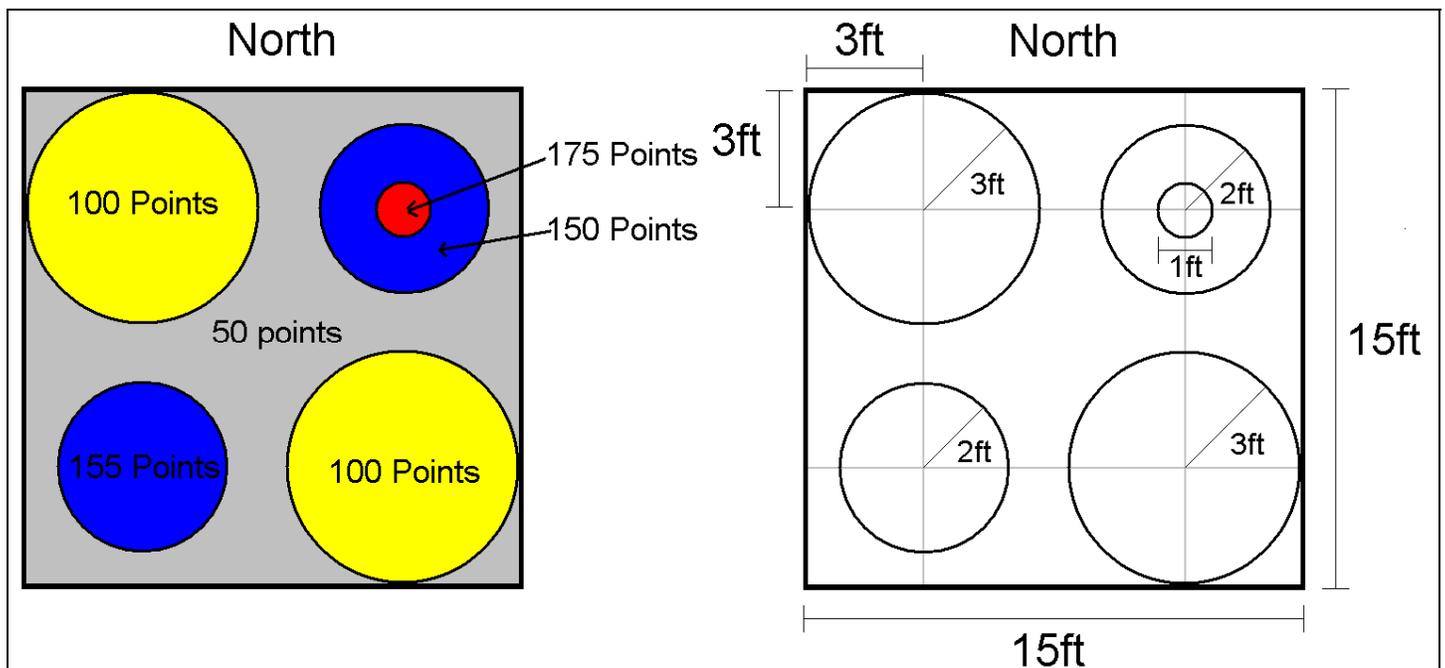

Figure 3: Target area point values and dimensions

The diagrams above shows the dimensions of the landing zones and their corresponding point values. The smallest landing zone has a diameter of 1 foot and a point value of 175.