GALLOGLY
COLLEGE OF ENGINEERING
The UNIVERSITY *of* OKLAHOMA

SUPERDOME

Problem

Oklahoma City is planning on supporting a professional football team to play in the NFL. To do this, OKC is hosting a design competition for a new football stadium. OKC has turned to your firm, the experts in civil, mechanical, and structural engineering to design a Superdome stadium. The winning design will withstand the most weight.

Goal

- Snow in OKC can be heavy! You goal is to design and build a stadium that can support a significant amount of weight and be weatherproof (fully enclosed).

Constraints

- Your superdome must surround the football field (7.5" x 4.5").
- **Do not** attach your superdome to the football field or the table.
- Your superdome must be at least 3 inches tall above the football field and **include a door.**
- You must use at least 3 different materials.

Brainstorm & Design

- By yourself, look at the materials and sketch a design.

- In teams, compare designs and draw **ONE** team design.
  - Determine the materials you need to purchase to build your design.

- You must show your design to an Ambassador before **ONE** team member purchases supplies.

- When purchasing supplies, bring the plastic box to hold materials.
  - **No refunds or exchanges on purchased materials but you can visit store multiple times.**

Build & Test

- Build your superdome. Every team member should have a job and understand why each material is being used.
- Unofficially test your superdome by seeing if it will support a stack, or ream, of paper.
  - Be gentle: Don't just drop the ream on your dome. Keep your hands near the ream so you can take it off easily if your dome starts to collapse.
- Redesign your superdome if necessary.
- Officially test your superdome.

Materials:

Each group has **700 SEED dollars** to spend on the materials listed below. Fill in the table with the amount you plan to purchase, and the associated cost. Add your expenses together to be sure you're within budget.

Materials (Quantity)	Price	# to Purchase	Amount Spent
Popsicle Sticks (10)	$100		
Styrofoam Cup (2)	$100		
Straws (10)	$100		
Construction Paper (4)	$100		
Yarn (3 ft.)	$100		
Paper Clips (10)	$100		
Rubber Bands (5)	$100		
Toothpicks (20)	$100		
Paper Plates (2)	$100		
Duct Tape (2 ft.)	$100		
Masking Tape (3 ft.)	$100		
		Total Cost	

Judging Rubric

Your superdome will be judged on how many stacks, or reams, of paper it can support for 5 seconds.

- If superdome sinks 1 inch during testing, the dome has failed.
- 100 pts – Each ream of paper supported.
- 10 pts – Each additional unspent $100.

Design Space