VALUE IN DESIGN AND CONSTRUCTION

Construction Management Exercise

Assignment:

Based on what you have learned to date about architecture and engineering, we would like you to break up into teams to build some small model structures. The structures will be evaluated based on the following criteria

- The model must be able to span a minimum of 6". The model cannot be permanently attached to the testing bed.
- The structure must be able to hold a 4" x 4" x 4" solid cube within the structure, which cannot physically touch the cube when placed inside. Load will be placed on top of the cube.
- Views and light are very important both inside and outside the space, so two (2) sides are to have windows that are 3.5" x 3.5", and therefore cannot have any structural members within that space.
- A minimum of 1 side must have a sold wall inside the cube
- Materials used can only be those listed below and purchased through us.
- The structure must be able to hold approximately 350 grams of weight, which will be approximated by one (1) 12-ounce can of pop

The team that can build a structure meeting the requirements for the least amount of money will be awarded the assignment. Aesthetics are very important, and the owners will provide a maximum of $10 bonus dollars to any projects which are more visually appealing. Each group will have a maximum of $125 to purchase materials for their project, subject to the following price and lead-time schedule.

	Buy Number							
	1		2		3		Each additional	
Item	**Cost**	**Lead Time**	**Cost**	**Lead Time**	**Cost**	**Lead Time**	**Cost**	**Lead Time**
Pack of 10 Plain Toothpicks	$ 6.00	None	$ 7.00	2 minutes	$ 8.00	3 minutes	$ 2.00	2 minutes
3" x 5" index cards 9 (ea)	$ 8.00	None	$ 9.00	2 minutes	$ 10.00	3 minutes	$ 1.00	2 minutes
Scotch Tape (per inch)	$1.00	None	$ 2.00	1 minute	$ 3.00	1 minute	$ -	None
Paper Clips (ea)	$ 3.00	None	$ 4.00	1 minute	$ 5.00	1 minute	$ -	None
Hot Glue gun rental (per minute)	$ 2.00	None	$ 2.00	None	$ 2.00	None		None

Each group will be required to spend 15 minutes awaiting a building permit (spend this time planning). Each group will have 30 minutes to complete their structure. Time is of the essence, so for each minute the group finishes early; they will earn a bonus of $2. Conversely, each minute the group is late; they will receive a penalty of $2 per minute. The mentors will have the authority to award an incentive of up to $10 to models that are exceptionally well built or look aesthetically pleasing.

Any materials remaining unused at the end of the project can be returned for ½ of the original value.

Additionally, there is a fixed amount of hot glue guns. If another group is using them, you will be placed on a waiting list for their use. White glue and scissors will be available to all groups at no cost, subject to availability.

CHANGE ORDER

Upon seeing the structures in progress, we decided the models looked dark, and requested that a 2" x 2" skylight be added to the roof of the structure. All of the other same requirements of the structure hold true. As a result of this added work, each team will get an additional 5 minutes to build their structure, and will get an additional $25 to spend in materials.