**Case Study 3 -- Bright Lighting Lamp Shade Company**

Stared in Topeka, Kansas, after the student unrest of the 1960s had died down, the Bright Lighting Lamp Shade Company served an upscale local market for many years. It designed and built custom lamp shades and lamp globes. In the mid-1980s, some architects who had once studied under Sterling Frank were commissioned to design several large public buildings in Europe. A total of 5,400 identical lights were to be installed, and the Bright Lighting Lamp Shade Company wished to bid on the work. Terms of sale would include delivery to the foreign port where the buyer would take possession.

Transportation costs would be a hurdle. In the initial design, the shades were cylinders that were 11 inches high and 11 inches in diameter and were packed into boxes that were 12 by 12 by 12 inches. (We refer to these shades as style A.) The packages cost 60 cents each and weighted 1 pound each. The shades cost $4 each to manufacture. They weighed 9 pounds each and 10 pounds packaged.

They would be shipped to the port. The land rate to the port was $1,000 per 40-foot container, without regard to weight, although the weight of the load could not exceed 44,000 pounds per loaded container because of highway weight restrictions. The interior dimensions of the intermodal container were 8 feet wide by 8.5 feet high by 40 feet long.

Ocean rates from the port to the overseas port were $22 per ton (2,000 pounds), except that the ocean conference used a measurement ton that indicated that for bulky loads every 40 cubic feet would equal 1 ton for rate-making purposes. (That is, a shipment weighing, say, 130 pounds and occupying 80 cubic feet would cost as though it weighed 4,000 pounds.) Insurance costs were 2 percent of the value of the shipment ready to be loaded aboard ship in port. (This is calculated as all of the company’s costs up to this point.)

Because of the large size of the order, Bright Lighting Lamp Shade Company realized that it could custom design a shade that, rather than being a cylinder, would be shaped like a cone. The advantage to that was that the shades could be nested. Some padding would be required between the shades, but the nested shades would also help protect each other. However, cutting out material for conical shapes results in waste, so production costs would be higher. Two alternative cone-shaped designs were proposed (referred to as styles B and C).

Style B cost $5 per shade to manufacture and could be shipped nested in packages of six. The package dimensions were 12 by 12 by 48 inches, and when holding six shades, a package weight 62 pounds. Each package cost $2, and this included padding between the shades.

Style C cost $6 per shade to make and could be shipped nested in packages of 10. The package dimensions were 12 by 12 by 50 inches, and when holding 10 shades, a package weighed 101 pounds. Each package cost $3, including padding between the individual shades.

**QUESTIONS:**

1. How many style A shades can be loaded into an intermodal container?
2. How many style B shades can be loaded into an intermodal container?
3. How many style C shades can be loaded into an intermodal container?
4. What are the total costs of delivering the style A shades to the port of importation?
5. What are the total costs of delivering the style B shades to the port of importation?
6. What are the total costs of delivering the style C shades to the port of importation?
7. Which style would you recommend? Why?