

# Upper Class Consulting

Somewhere, Texas

## Memorandum

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To: Design Engineers  
From: Ed Akin, PhD, PE, and Chief Engineer  
Date: October 19, 2009  
RE: Evaluation of new product lines

One of our clients, the Ta-Da Design Group, is seeking to diversify into a new business area. They have initially selected two product areas, and related patents, as being of interest to them. Ta-Da has retained Upper Class Consulting to help them decide whether to produce some of these products or to develop a new concept. The tradeoffs include the license fees for existing patents versus the cost and time delay of obtaining a new patent (\$7K - \$20K and 1 to 3 years). Ta-Da has picked two potential products: 1. a flat panel display stand, or 2. a hydraulic door closer. Of course, you are encouraged to suggest alternate products or patents for evaluation.

Existing patents generally describe a physical embodiment and give detailed (but un-dimensioned) sketches. They generally do not define the materials or working environment. We need to create precise CAD parts, assemblies and drawings. Also needed are the dimensions and materials so that we can evaluate the material costs, manufacturing requirements, user instructions, marketing material, etc.

I have decided to have an internal competition for evaluating and presenting the suggested new potential product lines. After this feasibility study, we will select the best option and seek to arrange the purchase of a license from the patent holder, or obtain a new patent.

I want you to divide yourselves into teams that will compete against each other. You can search the US Patent and Trademark Office (PTO) <http://www.uspto.gov/> (Patents→ Search→ Patent Number) web site for the selected patents, and related references, from which to pick an embodiment to design. (Google Patents gives better access to the patent figures.)

Suggested patents related to the design areas are: 1. Re. 36,978 (cited as the "978") a reissue of 5,687,939; and 2. US 5,666,692 ("692"), or US 6,442,795 ("795"), respectively. Please select one of the products lines (or propose a third) and review the claims at the end of the related patent(s). The specifications at the front of the patent describe how the inventor envisions each embodiment to work. I will post electronic copies of these and related patents.

Our new installation of SolidWorks and SW Simulation is now operational. Spend some time learning the new software, and then each team will employ the new software to:

- a. Prepare solid models of the parts and assembly
- b. Present the recommended part sizes and material choices
- c. Carry out any related FE analysis required
- d. Determine the material volumes of each component and estimate the material needed to produce 5,000 units per year
- e. Prepare detailed drawing appendix with dimensions for manufacturing

Your team will prepare a written design report (with analysis results) for the engineering management to review. In addition, each team will prepare a 5-10 minute oral presentation,

in which each member speaks, to describe their analysis, design, materials selected, and reasons for producing their design.

After you have completed the design presentations of your group design, we may be able to identify a potential new product for the Ta-Da Design Group that will not infringe on these (or any other) patents. So, keep those "what-if" questions coming in as you go through this competition.

Our tentative schedule is:

Date → Description

- 10/20 → Announce team members and selected project
- 10/22 → Begin patent and web searches related to your project
- 10/27 → Prepare any hand sketches, consider your design intent
- 10/29 → Begin part constructions (split among team)
- → Begin assembly construction
- → Begin FE analysis of parts and assembly
- 11/10 → Complete FE studies
- 11/12 → Complete presentation materials
- 11/17 & 19 → Give oral design and marketing presentations
- 11/24 → Submit draft design report
- 11/26-27 → Holiday
- 12/1 → Revise draft design report, if needed
- 12/4 → Submit final revised design report