

## THE PRODUCT DESIGN DEVELOPMENT PROCESS - A Typical Industrial Design Program

Each program is tailored to your corporate goals and marketing objectives. The outline below is characteristic of the Phases and Steps used to develop a new product design or redesign an existing product. Time and cost will vary based on the magnitude and specific needs of your program. This outline is for a comprehensive program that takes a product from inception, right up to start-up production. The redesign of an existing product can be less extensive based on existing product, size and complexity information.

A Design Criteria List will be generated at the inception of the program. This collaboratively created list will become the benchmark for each step of the program. KDA will interface with various toolmakers and manufacturers to insure a smooth transition from Design Concepts to prototypes to preproduction sample runs and the interface of various product components.

| PHASE 1 | PRODUCT DESIGN DEVELOPMENT                                                                              |                 | Check List Steps Wanted |
|---------|---------------------------------------------------------------------------------------------------------|-----------------|-------------------------|
| 1.1     | Objectives Work Session & Program Review – Develop Design Criteria List.                                | 0.5 – 1.0 Day   |                         |
| 1.2     | Design Research / Review Competitive Market & Products / Exploratory Market Research                    | 1.0 – 4.0 Wks   |                         |
| 1.3     | Product Design Development – Concepts, Ideation, Brainstorming New Ideas                                | 2.0 – 3.0 Wks   |                         |
| 1.4     | Client Presentation – Work Session - Present Concepts - Select 1 or 2 directions.                       | 0.5 - 1.0 Day   |                         |
| 1.5     | Market Research – Focus groups – Measure Concepts against competition, etc.                             | 2.0 – 6.0 Wks   |                         |
| 1.6     | Design Refinement / Modifications – Photo Realistic Product Renderings. CAD Engineering                 | 1.0 – 3.0 Wks   |                         |
| 1.7     | Vendor Sourcing / Interface – Concurrent to Steps 1.3 to 1.6 – Preliminary tooling and Piece Part costs | 1.0 – 2.0 Wks   |                         |
| 1.8     | Client Presentation – Work Session – Select Final Product Configuration.                                | 0.5 – 1.0 Day   |                         |
|         | <b>Sub Total</b>                                                                                        | 7.0 – 18.0 Wks  |                         |
| PHASE 2 | RAPID MODEL MAKING & PROTOTYPES                                                                         |                 |                         |
| 2.1     | Preliminary Engineering Drawings – Prepare Database CAD Files for Prototypes.                           | 2.0 – 3.0 Wks   |                         |
| 2.2     | 3D Stereolithography / Rapid Model Patterns / Tooling / Prep for model making.                          | 1.0 – 2.0 Wks   |                         |
| 2.3     | Prototype Models – Single or Multiples – Comprehensive, with or without Graphics                        | 3.0 – 4.0 Wks   |                         |
| 2.4     | Evaluation by Your Marketing Team – Optional Market Research / Focus Groups or User Tests               | 1.0 – 4.0 Wks   |                         |
|         | <b>Sub Total</b>                                                                                        | 7.0 – 13.0 Wks  |                         |
| PHASE 3 | FINALIZATION & PRE-PRODUCTION COORDINATION                                                              |                 |                         |
| 3.1     | Design Finalization – Modifications – May include Mechanical Engineering Steps.                         | 1.0 – 2.0 Wks   |                         |
| 3.2     | Vendor Interface – All Components – Final Tooling and Piece Part Costs                                  | 1.0 – 2.0 Wks   |                         |
| 3.3     | Production Drawings – B.O.M. (Bill of Material) Database CAD Files & Prints                             | 2.0 – 3.0 Wks   |                         |
| 3.4     | Unit Cavity Sample Tooling Coordination (Add 6 to 8 Weeks + Production Tooling Times)                   | 2.0 – 4.0 Wks   |                         |
| 3.5     | Product Evaluation by Client & Refinements on an as-needed basis.                                       | 0.5 – 1.0 Wks   |                         |
| 3.6     | Completion of program – Hand-off of all database information in electronic format.                      | 0.5 – 1.0 Wks   |                         |
|         | <b>Sub Total</b>                                                                                        | 6.0 – 13.0 Wks  |                         |
|         | <b>Total</b>                                                                                            | 20.0 – 44.0 Wks |                         |

In about 6 months to 10 months you can have a new product developed ready for production and/or presentation at your industry trade shows. Time and Costs will be estimated on the type of product and the magnitude of the program. The time frame can be reduced considerably for redesigned products that do not require extensive market research or prototyping. Multiple models and more extensive market research such as home placement tests or user studies can be integrated into the program. Similar programs can be provided for Electromechanical Engineering, Package Design, Product Graphics, Merchandising Display Development, P.O.P. Systems and/or complete Package Design and Literature Development Programs by our Graphic Design / Package Design Group. Call for additional literature.