Rapid Prototyping Facility

Purpose:

To fabricate three-dimensional models directly from computer data.

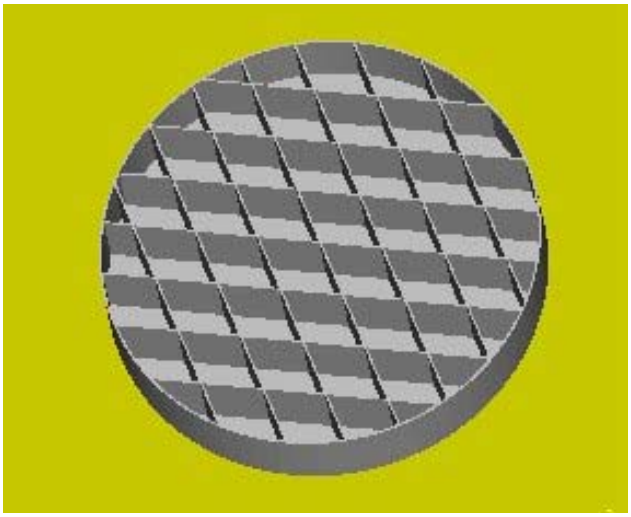
MSFC hosts a world class rapid prototyping facility in their Productivity Enhancement Complex, which encompasses every domestic rapid prototyping system currently sold commercially, as well as research systems in pre-manufacturing stages. These technologies provide a streamlined verification system for projects in the design phases, as well as checkpoints later in the game.

Rapid Prototyping (RP), in this context, refers to a collective set of manufacturing technologies that fabricate three-dimensional models directly from computer data without the need for conventional fixtures or numerical control code generation. These additive manufacturing techniques build parts in thin layers, from the bottom up, essentially "growing" apart in the selected material. RP technology significantly reduces the cost and time to develop solid models and evaluate this form, fit, and performance prior to manufacturing the finished part. Models that once usually took days or weeks to produce are now being completed in a few hours. In addition, the design engineer gets to see, hold, and examine the concept part much earlier in the design stages, thereby reducing costly rework of mating parts and assemblies due to design changes. With MSFC's unique RP capabilities, the need for mock-ups and other intermediate steps (required to produce flight quality products) are being phased out as new materials are developed and larger size parts become more feasible to produce.

MSFC not only applies RP to the design and manufacturing projects, but also works to:

- Improve existing system's materials capabilities,
- Develop/refine secondary applications, such as investment casting and soft tooling,
- Apply RP technology to manufacturing in space and on other planets.

Capabilities available in-house are: stereolitography, fused deposition modeling, laminated object manufacturing, selective laser sintering, three dimensional printing, and multijet modeling.



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