(as in blanking or punching) and formative (as in bending and forming) processes.

1.1.2 Generic RP process:

- Before the application of RP, computer numerically controlled (CNC) equipments were used to create prototypes either directly or indirectly using CAD data.
- CNC process consists of the removal of material in order to achieve the final shape of the part and it is in contrast to the RP operation since models are built by adding material layers after layers until the whole part is constructed.
- In RP process, thin-horizontal-cross sections are used to transform materials into physical prototypes. Steps in RP process are illustrated in the below figure.

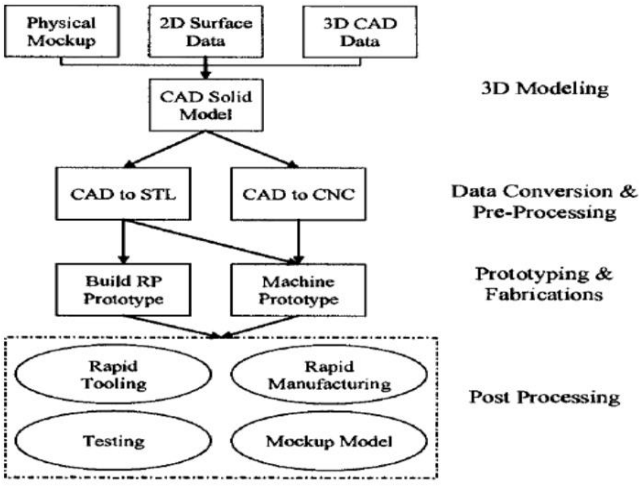

Fig 1.2 Generic RP process

- Depending on the quality of the final prototype, several iterated is possible until an acceptable model is built.
- In this process, CAD data is interpreted into the Stereolithography data format. Stereolithography or "STL" is the standard data format used by most RP machines.
- By using "STL", the surface of the solid is approximated using triangular facets with a normal vector pointing away from the surface in the solid.
- Since chordal deviation is used to approximate real mathematical surface, it is important to minimize this deviation to better approximate the real surface.
- This impact the size of the required triangles and it will also increase the processing time.
- A wide range of technologies are developed to transform different materials into physical parts. For RP process, materials are categorized into liquid, solid and powdered.
- As Rapid Prototyping (RP) technology becomes more mature, it is beginning to lend itself to other applications such as rapid tooling and rapid manufacturing.
- Some traditional tool making methods are considering the use of RP technologies to directly or indirectly fabricate tools.