



# SUPPORT GENERATION

## Support Structure Design:

- Depending on the design and the application, a support structure may be disintegrated into three functional areas.

### 1. Separators:

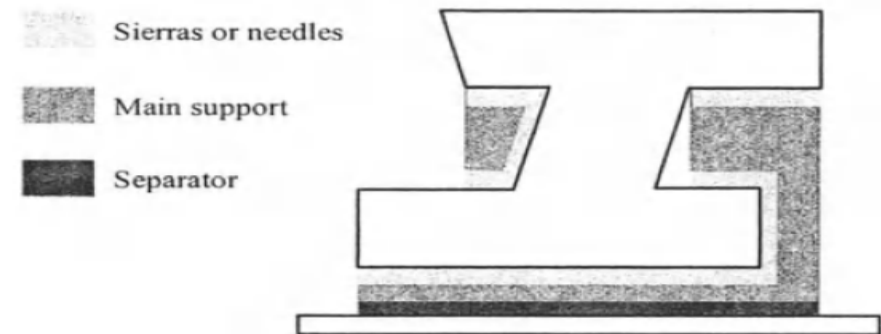
- b/w main support and platform.

### 2. Supports:

- main support structure

### 3. Sierras or needles:

- b/w main support and part.



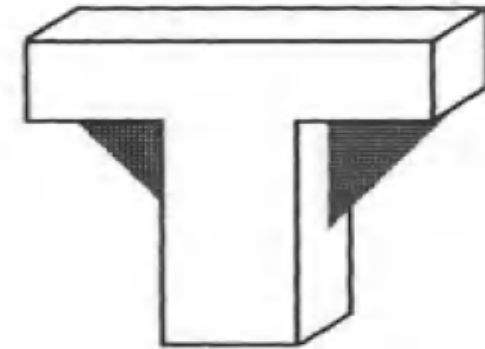


# SUPPORT GENERATION

- There exist a variety of designs for the main support structure. The following are some commonly used support structures:

## Gussets:

- Gussets are used to support lightweight overhang areas during the part building process and attach to **a vertical wall near the overhang areas.**

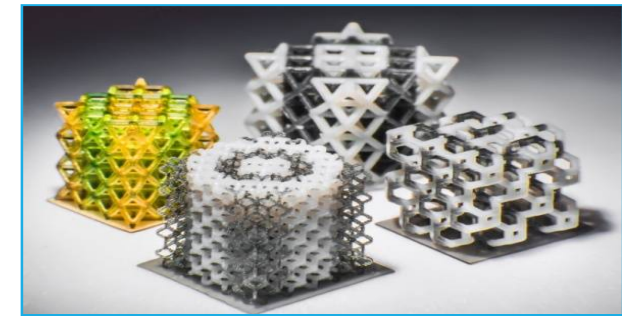




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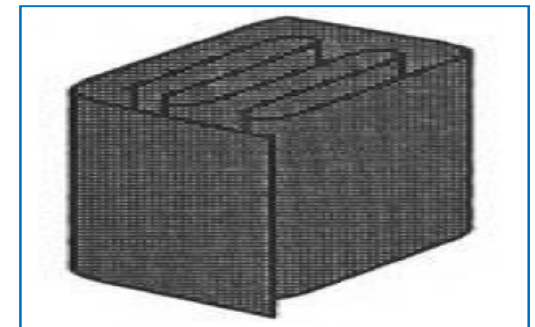
## Honeycomb:

- Other sophisticated support structures similar to the **honeycomb style for hollowing** master prototype models may also be used as support structures.



## Zigzag and Perimeter support:

- The zigzag and perimeter support structure is most suited for FDM prototyping with a continuous path for each layer.





# FUNCTIONS OF SUPPORT GENERATION

## 1. To separate parts from the platform:

- The **use of supports** will make it easier to **safely remove the part** from the platform after model production.
- It will also be easier to control the layer thickness and surface quality of the bottom layers.

## 2. To provide support to hanging structures:

- It provides support to hanging structures and prevents such structures from collapsing.



# FUNCTIONS OF SUPPORT GENERATION

## 3. To provide a collision avoidance :

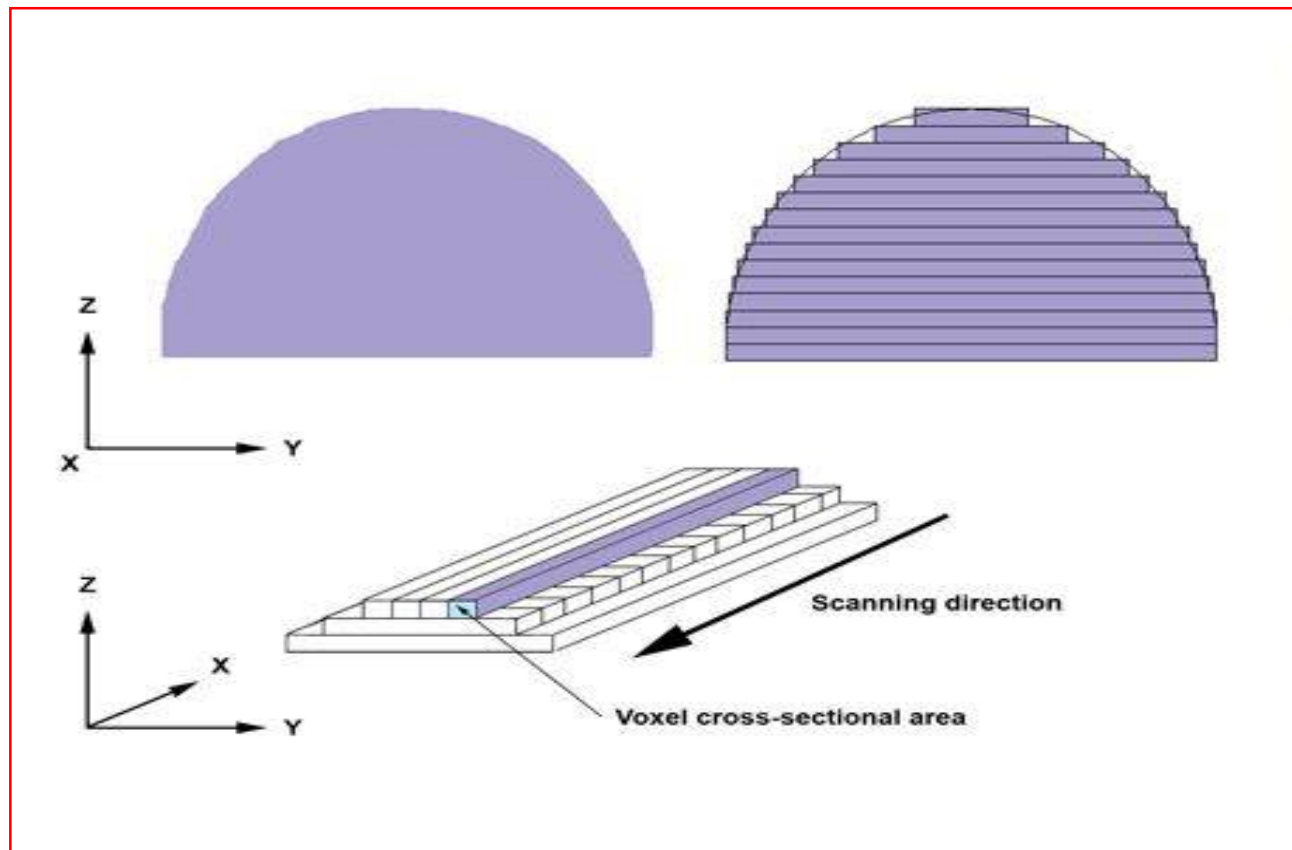
- The supports also provide a collision avoidance between the platform and other components of the machine

## 4. Process improvement:

- To improve liquid flow in and around the part in the stereolithography process.



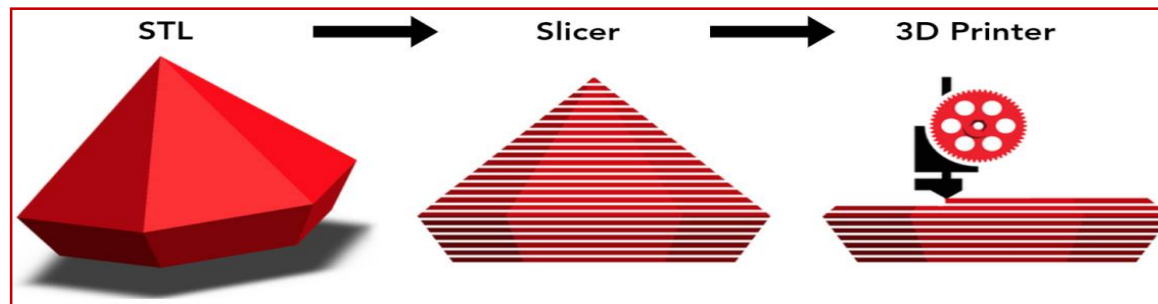
# MODEL SLICING



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# MODEL SLICING

- The CAD/STL model is sliced into multiple horizontal layers.



- A number of algorithms have been reported for slicing models with **uniform layer thickness**.
- Some researchers have also explored **adaptive slicing** using a **variable layer thickness**.