

BASIC DESIGN 2

Chapter 2:

SERIAL PLANES

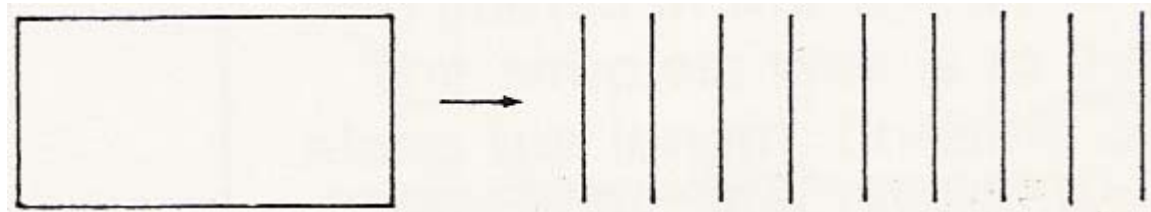
FACTS:

Points determine a line. Lines determine a plane. Planes determine a volume

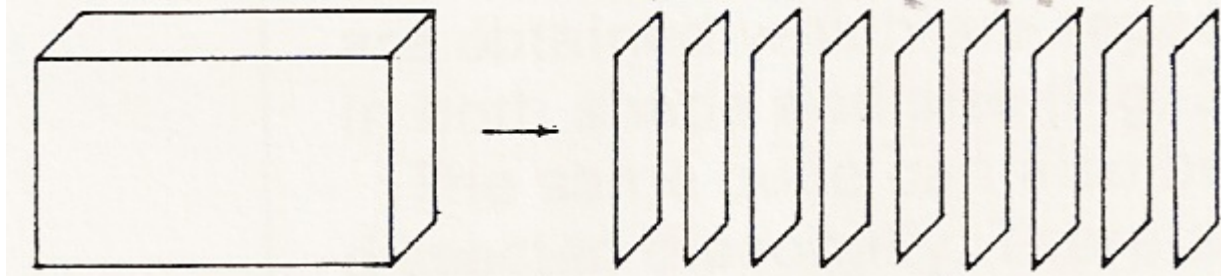
A line can be represented by a series of points.



A plane can be represented by a series of lines.



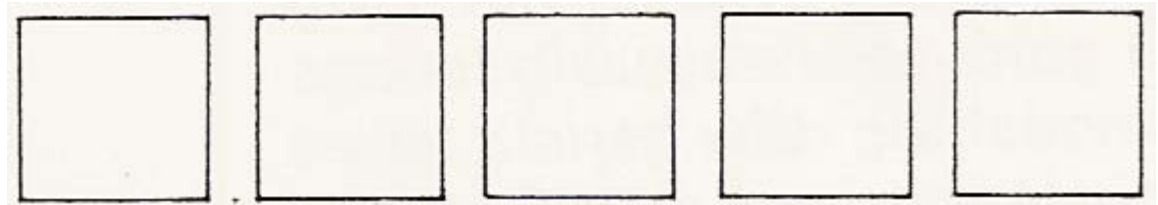
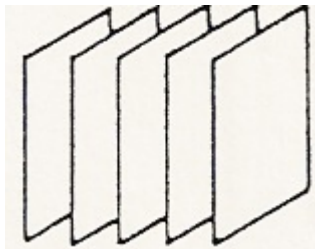
- A volume can be represented by a series of planes.
- in this case, each plane is a cross section of the volume.



- Accordingly, to construct a volumetric form, we can think in terms of its cross sections.

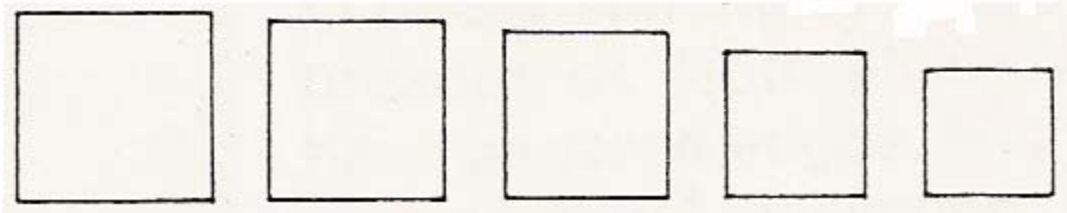
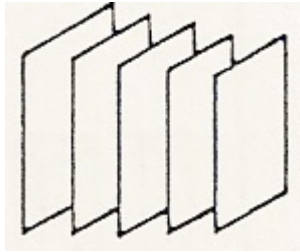
In other word, how the form can be sliced up to regular intervals, which will result in serial planes.

- Each serial plane can be considered as a unit form which may be used either in repetition or in gradation.

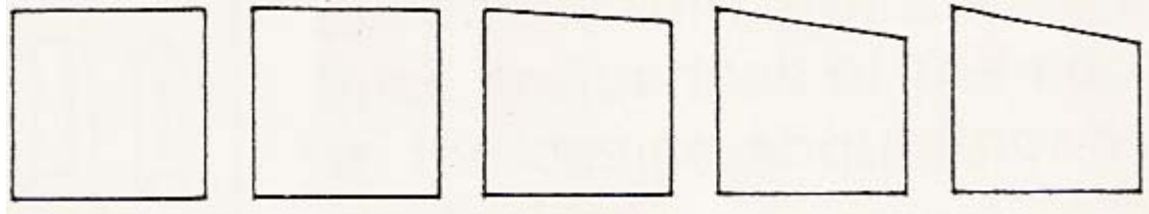
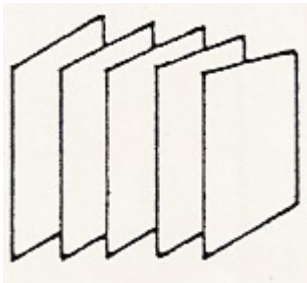


As mentioned, repetition refers to repeating both shape and size of the unit forms.

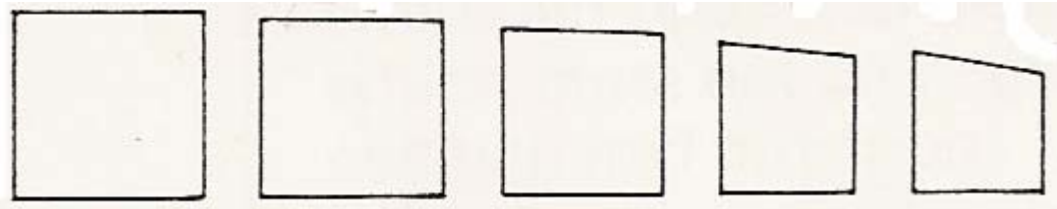
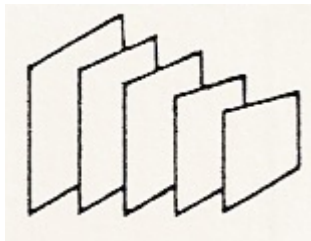
Gradation refers to gradual variation of the unit form, and it can be used in three different ways



a. Gradation of size but repetition of shape.



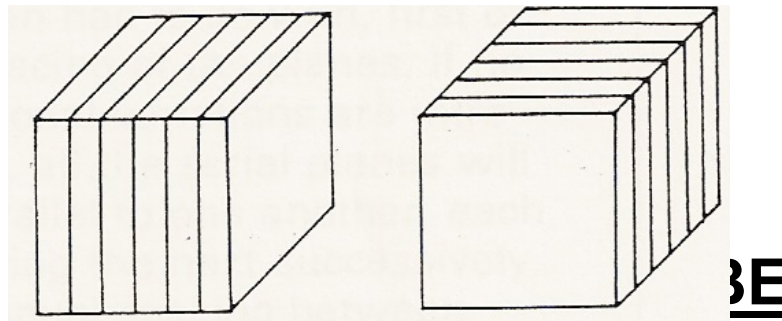
b. Gradation of shape but repetition of size.



c. Gradation of both shape and size.

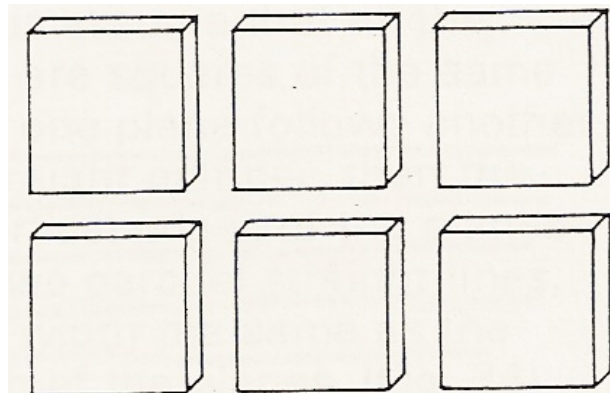
We can dissect a cube into a number of thin planes of the same thickness.

a. The simplest way is to dissect **along the length, breadth or depth** in a parallel layers.

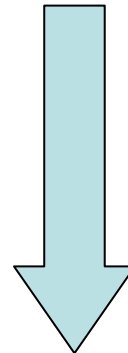
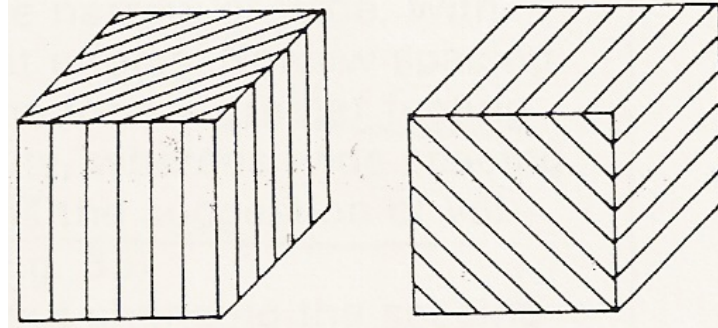


Accordingly

a number of serial planes are obtained which are repeats in both shape and size.

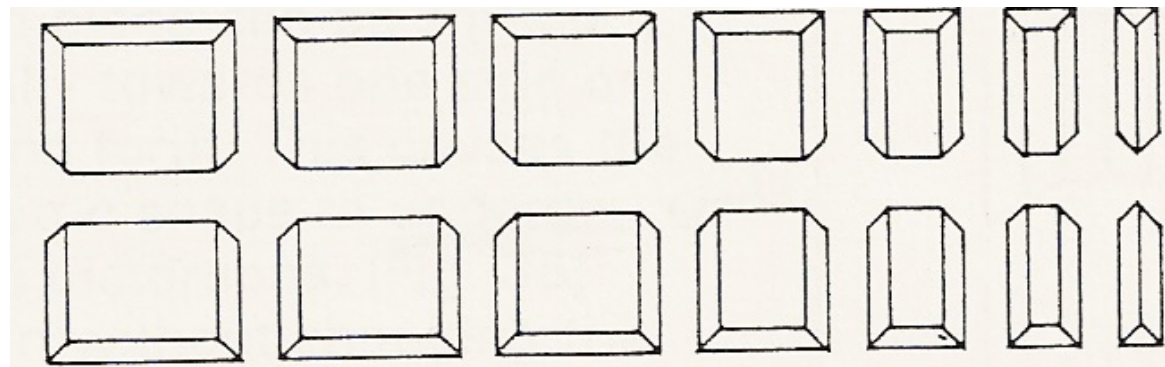


b. The same cube can also be dissected **diagonally**.

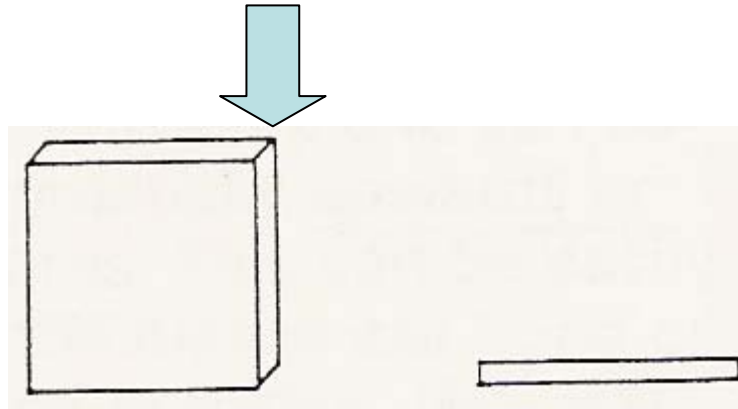


The result is:

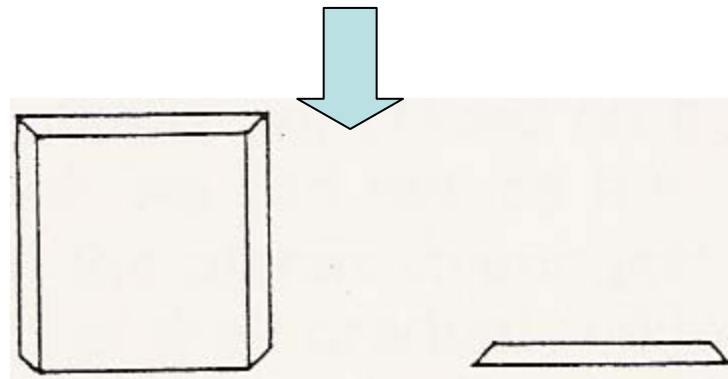
Serial planes with gradation of shape and size (the height remains constant, but the breadth increases or decreases gradually).



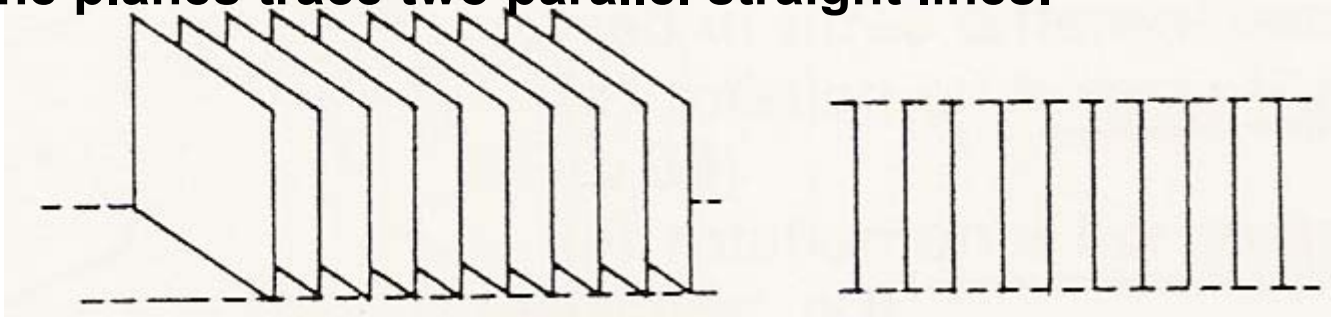
In dissection along the length and breadth or depth, all serial planes have squared edges.



In diagonal dissection, all serial planes have beveled edges



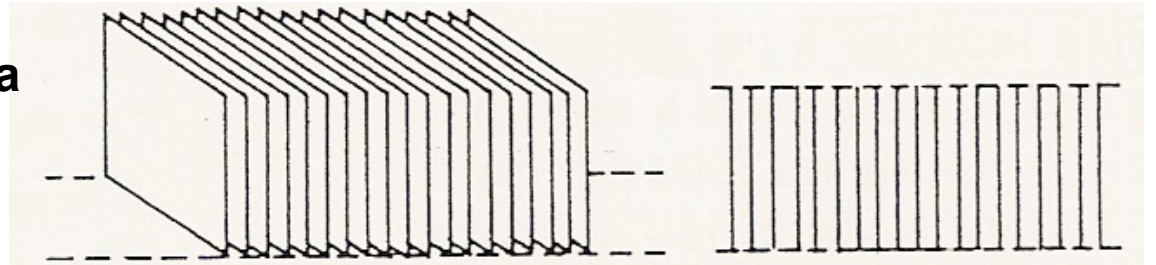
If one plane follows another in a straight manner, then the two vertical edges of the planes trace two parallel straight lines.



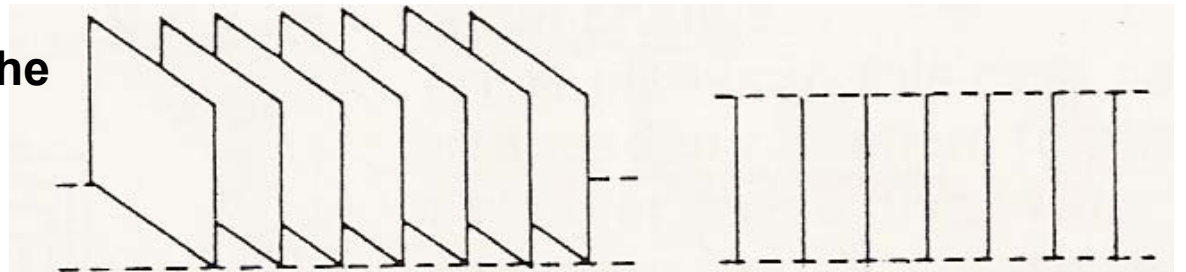
POSITIONAL VARIATIONS

Spacing between the planes can be made narrow or wide with different effects.

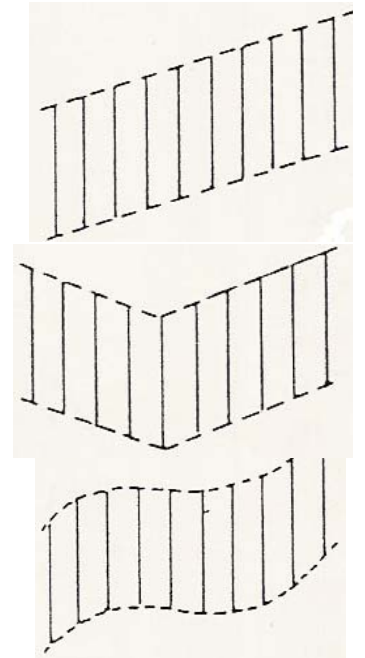
Narrow spacing gives the form a greater feeling of solidity.



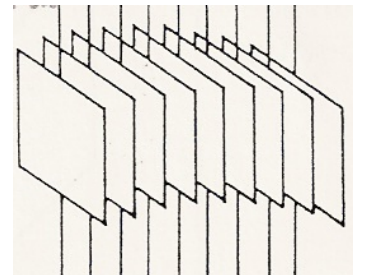
Wide spacing weakens the suggestion of volume.



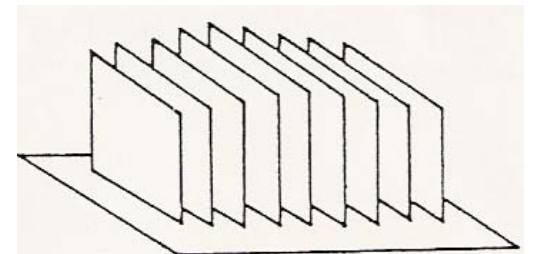
The position of each plane can be shifted gradually towards one side or back and forth.



The position of each plane can be gradually upwards or downwards.

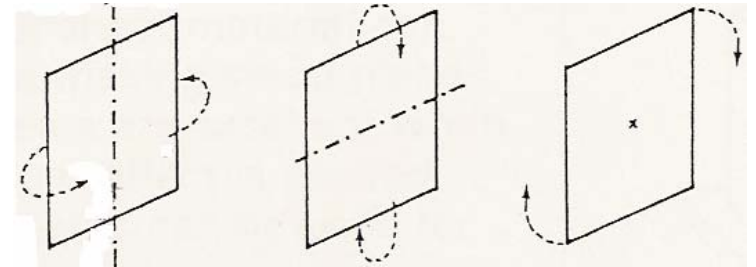


If the planes are placed on a baseboard, we can reduce the height of the planes to suggest the effect of their gradual sinking in just by positional variation in a vertical manner.



Can be varied in three different ways:

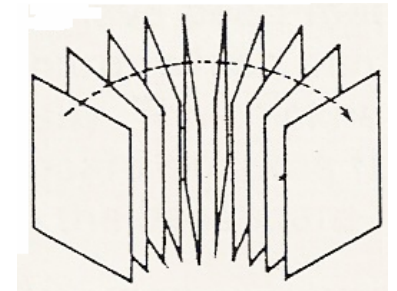
- a. Rotation on a vertical axis.
- b. Rotation on a horizontal axis.
- c. Rotation on its own plane.



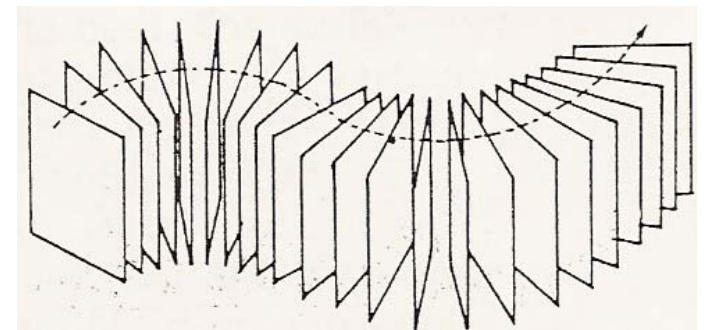
DIRECTIONAL VARIATION

ROTATION ON A VERTICAL AXIS

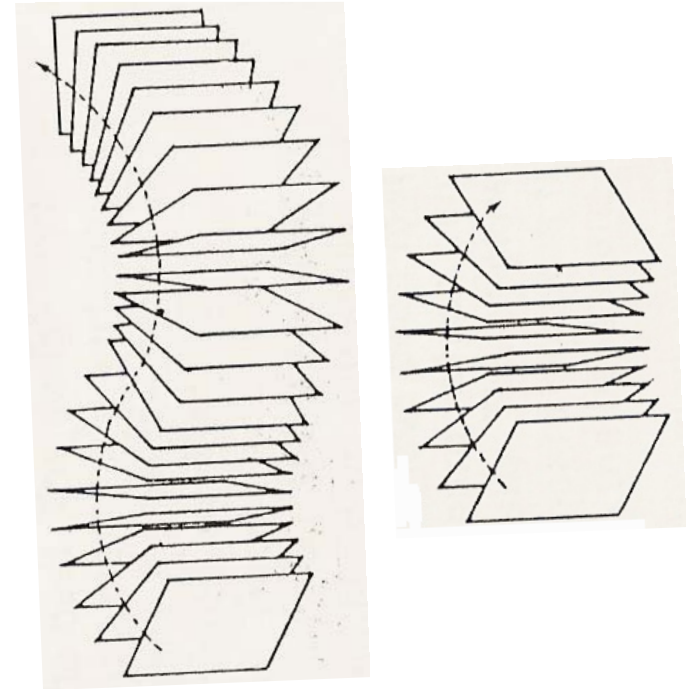
Can be arranged in radiation direction.



Can form a shape with curves left and right.

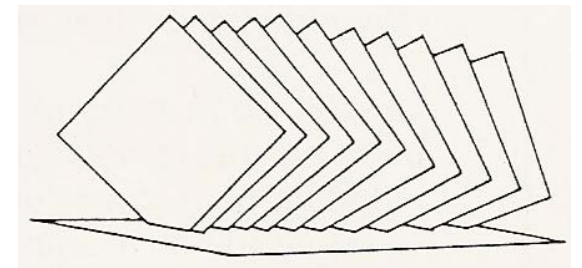


ROTATION ON A HORIZONTAL AXIS

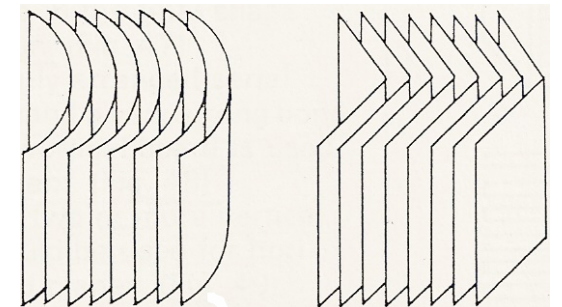


ROTATION ON ITS OWN PLANE

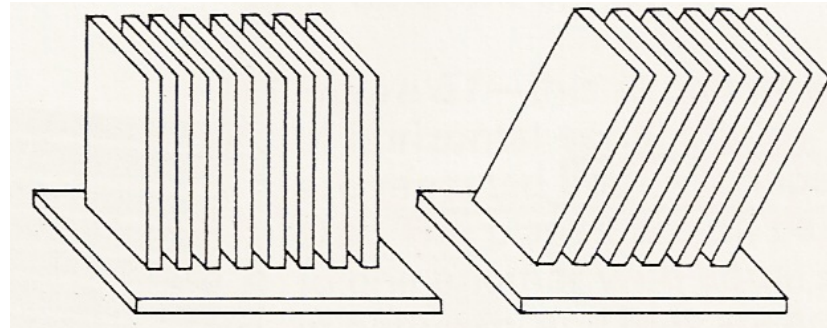
Means that the corners or edges of each plane are moved from one position to another.



The planes can be curled or bent.



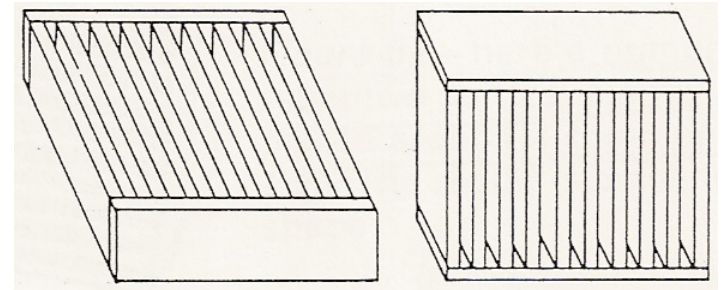
The serial planes can stand in a vertical position on the horizontal baseboard for maximum firmness and stability.



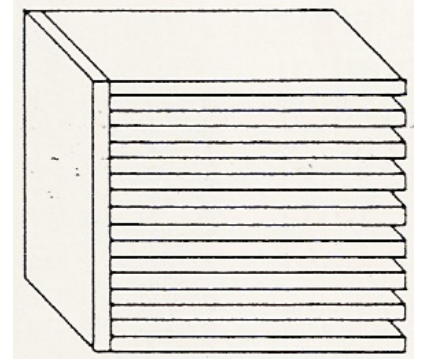
Tilted planes are possible only when the materials and the bond are extremely strong and the joining edge of each plane is beveled.

CONSTRUCTION TECHNIQUES

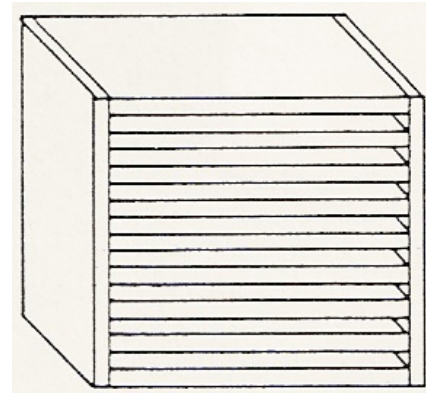
For reinforcement purpose, additional plane(s) can be used next to the top or side edges of the planes.



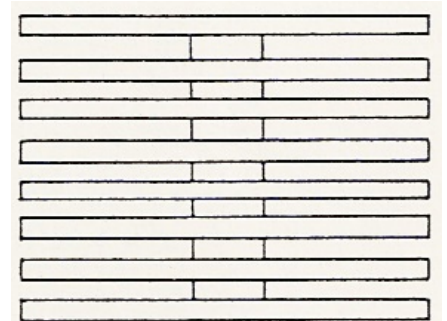
Horizontally arranged serial planes demand a very strong bond if only one vertical board is used for attachment.

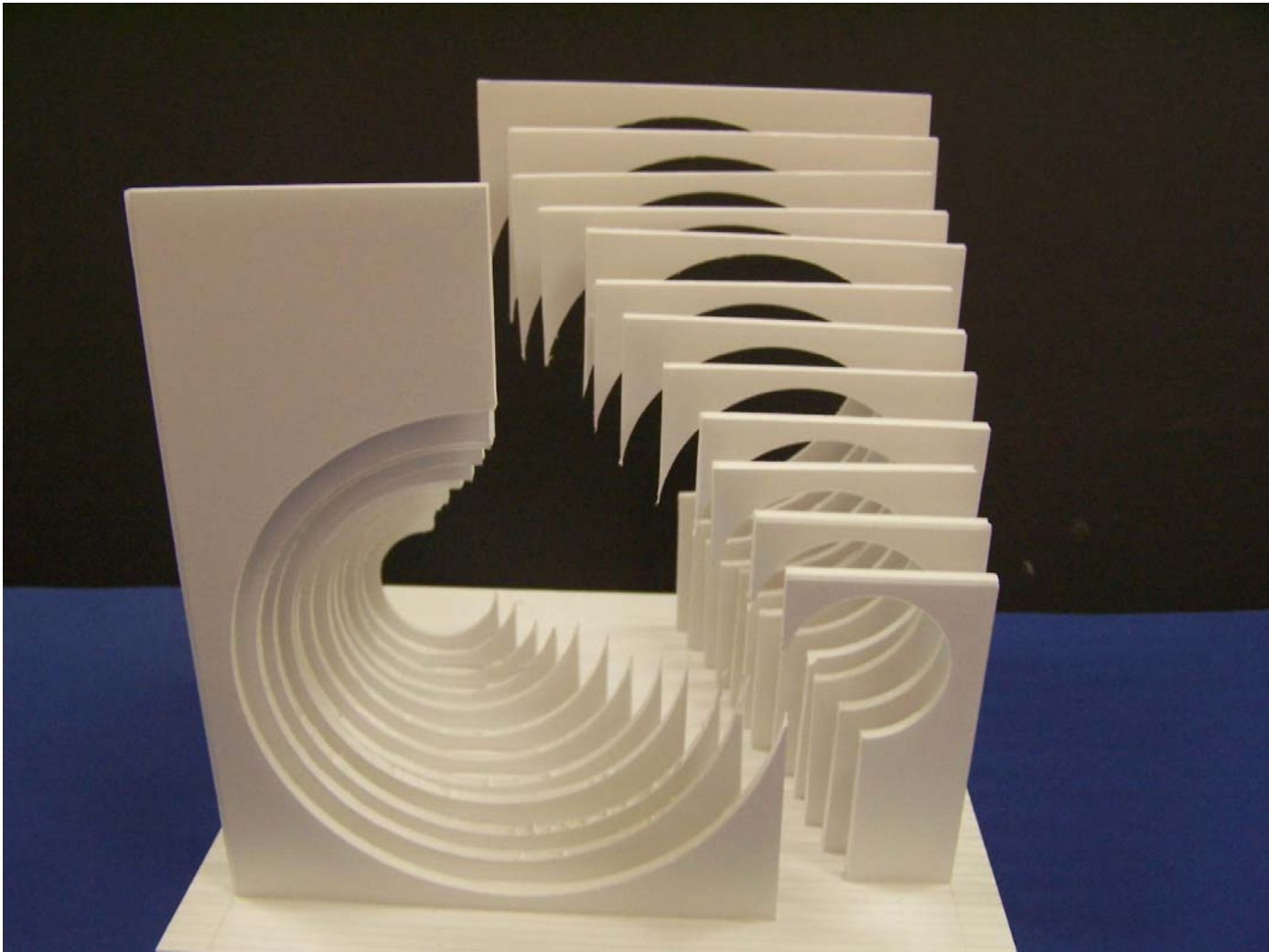


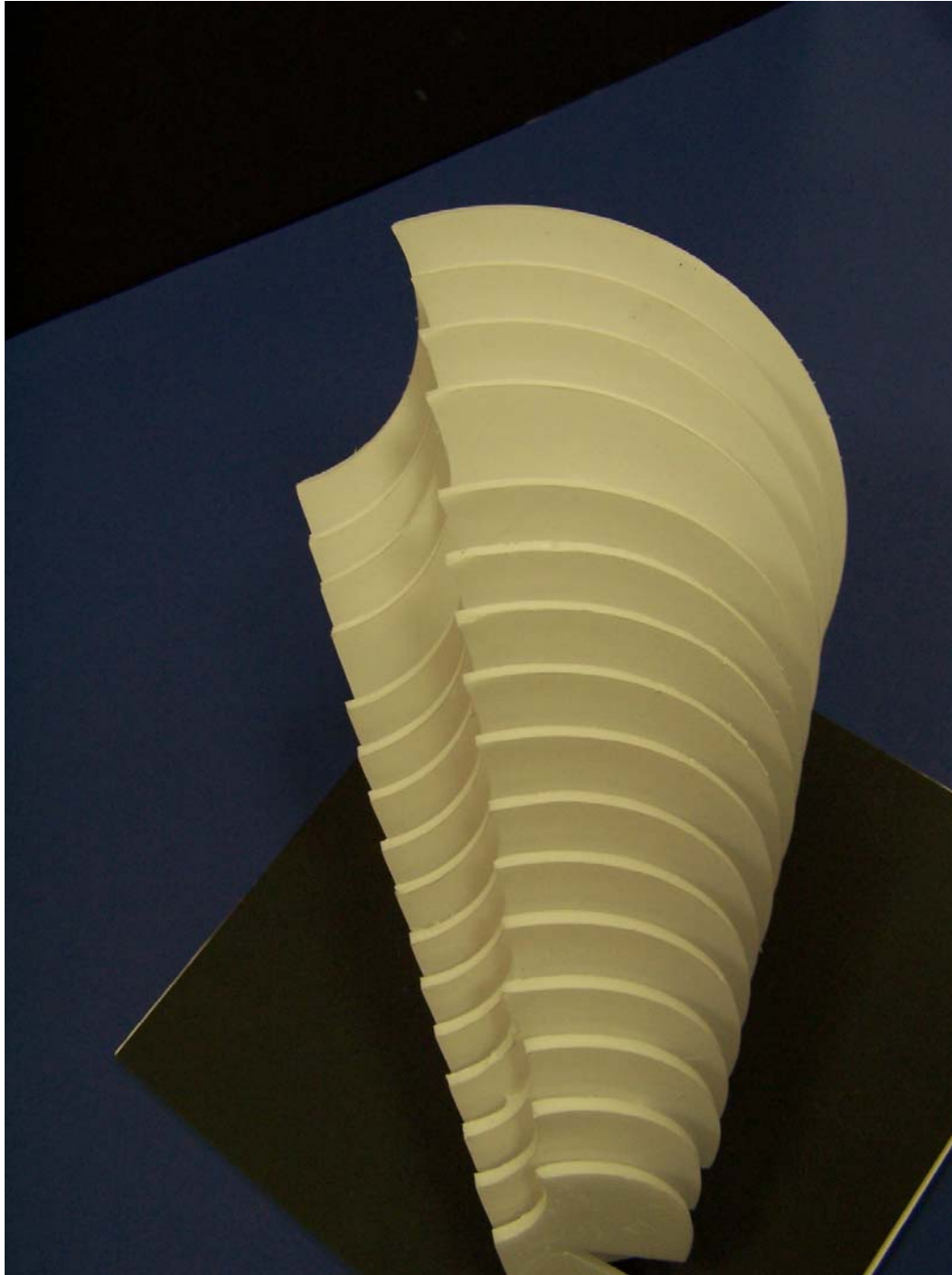
Normally, two or more vertical boards should be used for horizontal serial planes.

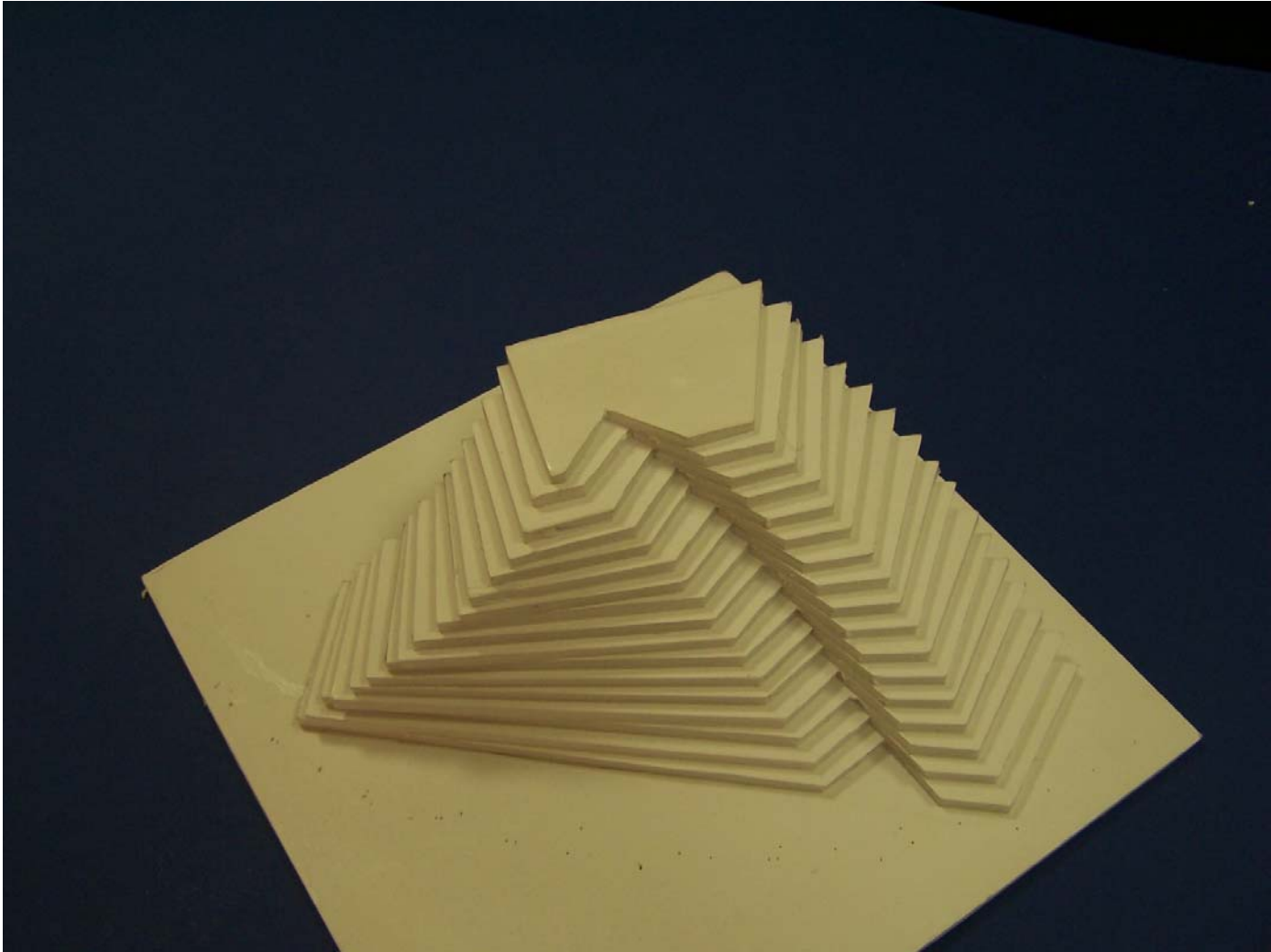


A vertical supporting core can be used for horizontal serial planes of a free standing shape if desired.











The PETRONAS Towers In Malaysia



Bank of America is another example for the serial planes and how we used it in the building

The Interior Ministry in Arriyadh







تم بحمد الله