

## 1-9. DRAWING PAPERS

Drawing papers are available in many varieties. For ordinary pencil-drawings, the paper selected should be tough and strong. It should be uniform in thickness and as white as possible. When the rubber eraser is used on it, its fibres should not disintegrate. Good quality of paper with smooth surface should be selected for drawings which are to be inked and preserved for a long time. It should be such that the ink does not spread. Thin and cheap quality paper may be used for drawings from which tracings are to be prepared. The standard sizes of drawing papers recommended by the Bureau of Indian Standards (B.I.S.). are given in table 2-1.

Surface area of A0 size is one square metre. Successive format sizes (from A0 to A5) are obtained by halving along the length or doubling along the width. The areas of the two subsequent sizes are in the ratio 1:2. See fig. 1-30.

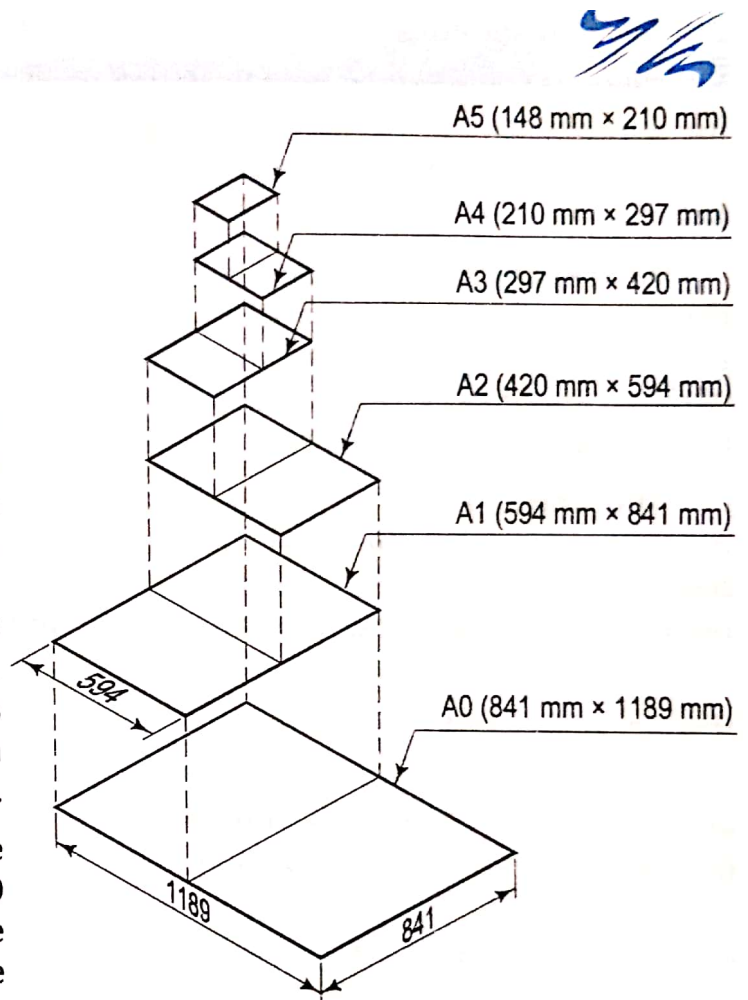


FIG. 1-30

## 1-10. DRAWING PENCILS



The accuracy and appearance of a drawing depend very largely on the quality of the pencils used. With cheap and low-quality pencils, it is very difficult to draw *lines of uniform shade and thickness*. The grade of a pencil lead is usually shown by figures and letters marked at one of its ends. Letters HB denote the medium grade. The increase in hardness is shown by the value of the figure put in front of the letter H, viz. 2H, 3H, 4H etc. Similarly, the grade becomes softer according to the figure placed in front of the letter B, viz. 2B, 3B, 4B etc.

Beginning of a drawing should be made with H or 2H pencil using it very lightly, so that the lines are faint, and unnecessary or extra lines can be easily erased. The final fair work may be done with *harder pencils, e.g. 3H and upwards*. Lines of uniform thickness and darkness can be more easily drawn with hard-grade pencils.

H and HB pencils are more suitable for lettering and dimensioning. For freehand sketching, where considerable erasing is required to be done, soft-grade pencils such as HB should be used.

Great care should be taken in mending the pencil and sharpening the lead, as the uniformity in thickness of lines depends largely on this. The lead may be sharpened to two different forms:

- (i) Conical point and
- (ii) Chisel edge.

The conical point is used in sketch work and for lettering etc. With the chisel edge, long thin lines of uniform thickness can be easily drawn and hence, it is suitable for drawing work.

To prepare the pencil lead for drawing work, the wood around the lead from the end, other than that on which the grade is marked, is removed with a pen-knife, leaving about 10 mm of lead projecting out, as shown in fig. 1-31(a).

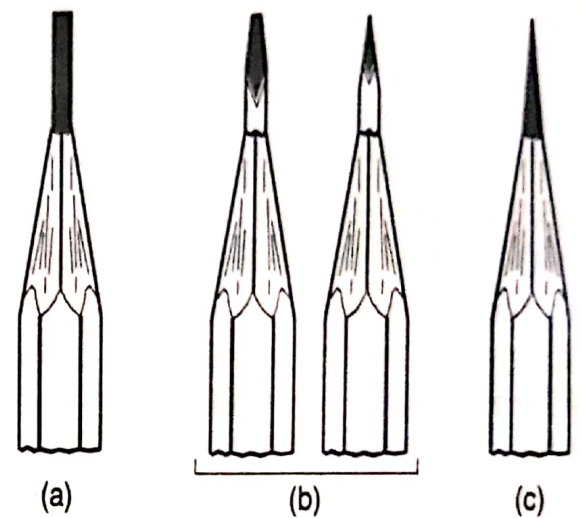


FIG. 1-31

The chisel edge [fig. 1-31(b)] is prepared by rubbing the lead on a sand-paper block, making it flat, first on one side and then on the other by turning the pencil through a half circle. For making the conical end [fig. 1-31(c)] the pencil should be rotated between the thumb and fingers, while rubbing the lead.

The pencil lead should occasionally be rubbed on the sand-paper block (while doing the drawing work) to maintain the sharpness of the chisel edge or the pointed end.

Instead of wooden pencils, Mechanical clutch pencils with a different lead size and grade like 5 mm, 4 mm and H, 2H, HB etc., are also available. Sharpening is not required in such pencils.

## 1-12. DRAWING PINS, CLIPS OR ADHESIVE TAPES



These are used to fix the drawing paper on the drawing board. The needle part of the pin is generally made of steel, while the head may be of plated mild steel or brass. Pins of about 15 mm to 20 mm diameter and about 1 mm thick flat heads made of brass are quite convenient, as they do not rust. Pins should be so inserted that the heads sit on the surface of the paper. Clips or adhesive tapes are often used instead of the pins. (Refer fig. 1-32).

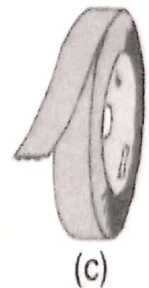
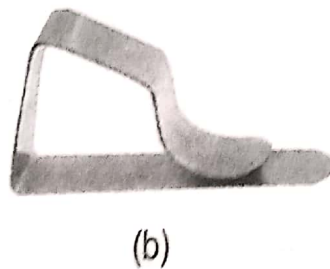
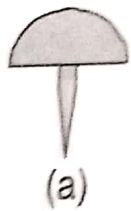


FIG. 1-32



## 2-1. SHEET LAYOUT

(1) **Sheet sizes:** The preferred sizes of the drawing sheets recommended by the Bureau of Indian Standards (B.I.S.) are given below as per SP : 46 (2003). Refer fig. 1-30:

TABLE 2-1

Sheet designation	Trimmed size (mm)	Untrimmed size (mm)
A0	841 × 1189	880 × 1230
A1	594 × 841	625 × 880
A2	420 × 594	450 × 625
A3	297 × 420	330 × 450
A4	210 × 297	240 × 330
A5	148 × 210	165 × 240

The layout of the drawing on a drawing sheet should be done in such a manner as to make its reading easy and speedy. Fig. 2-1(a) and fig. 2-1(b) shows an A1 size sheet layout. All dimensions are in millimetres.

(2) **Margin:** Margin is provided in the drawing sheet by drawing margin lines [fig. 2-1(a)]. Prints are trimmed along these lines. After trimming, the prints would be of the recommended trimmed sizes of the trimmed sheets.

(3) **Border lines:** Clear working space is obtained by drawing border lines as shown in [fig. 2-1(a)]. More space is kept on the left-hand side for the purpose of filing or binding if necessary. When prints are to be preserved or stored in a cabinet without filing, equal space may be provided on all sides (fig. 2-3).

(4) **Borders and frames:** SP : 46 (2003) recommends the borders of 20 mm width for the sheet sizes A0 and A1, and 10 mm for the sizes A2, A3, A4 and A5. Frame shows the clear space available for the drawing purpose.

(5) **Orientation mark:** Four centring marks are drawn as shown in fig. 2-1(b) to facilitate positioning of the drawing for the reproduction purpose. The orientation mark will coincide with one of centring marks which can be used for the orientation of drawing sheet on the drawing board.