Salahaddin University – Erbil   Planning and Graphic / Theory

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Department: Horticulture

TOOLS   Lecture 3

Markers and Ink (Additional)

Markers and *ink* may be used in addition to lead. They provide *excellent line quality*. The contrast of black lines on white paper creates a very clean and legible document. *Be sure the ink* is *dry before moving tools across it*. It will smudge and ruin a drawing.

Round tips are great for heavyweight lines. Chisel tip markers are great for drawing wide lines (Figure 1).

Professional marker sets have markers with a tip on both ends (Figure 2). One end has a fine tip that can be used for detail. The other end is a chisel tip that can be used to draw wide (1(4") lines or narrow lines only 1/8" wide. Some professional markers come with interchangeable tips to change the line width.

***Figure* 1 Marker Tips** Round tip (left)

and chisel tip (right).

***Figure* 2 Professional Marker** Fine writing tip

(left end) and chisel tip (right end).

Ink

Technical pens have tips made of metal and an ink reservoir (Figure 3). Today's pens utilize ink cartridges rather than filling a reservoir, thus avoiding the mess of refilling. Pens are held upright and lightly when drawing. In the past, they have been relatively expensive but have become much more affordable and easier to use. The line widths are measured in millimeters. Sets have very narrow tips, such as 0.2 mm, and wider tips, about 1.0 mm. The various widths of tips are used to get different line weights by using different line widths (Figure 4).

Pigment liners are fiber-tip markers that come in a set that has a variety of line widths. Similar to technical pens, they are relatively inexpensive and disposable. Unlike technical pens, the tips of liners tend to flatten on one side and should be rotated when drawing to keep lines of consistent width. A five-pen set can be purchased with a range of tips from .005mm to *.08mm.*
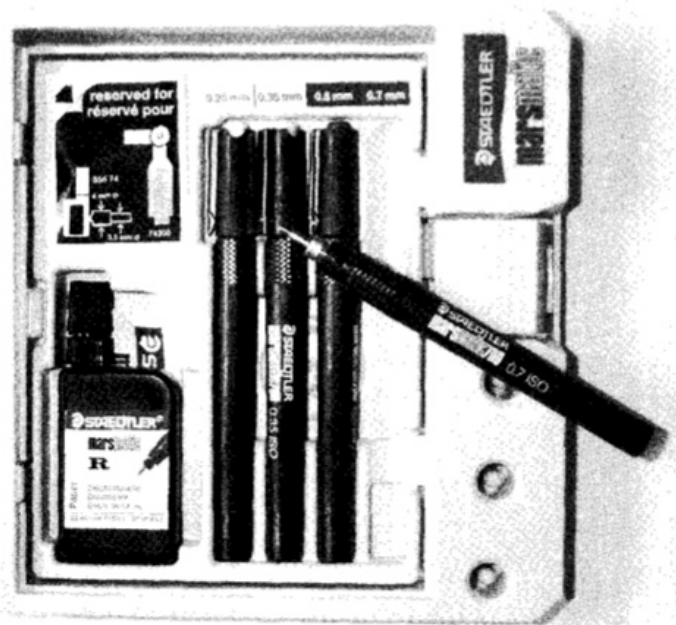
A
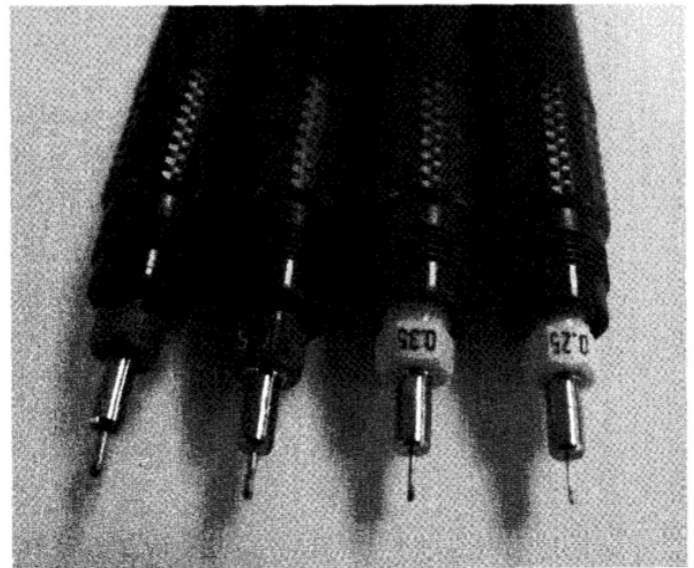
B

Figure 3 **Technical Pens and Pigment Liners**(a) Pens are refilled with ink. (b) Each technical pen has a different tip to specify line width, measured in millimeters.
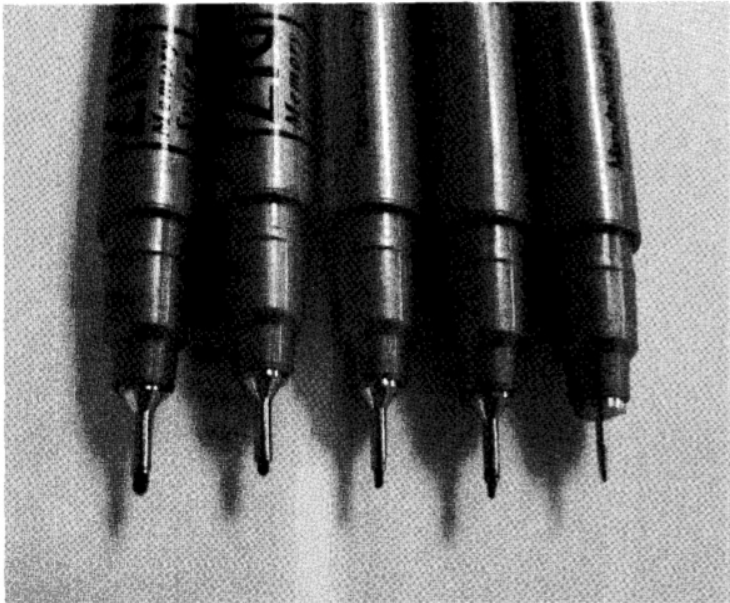
Figure 3 Technical Pens and Pigment Liners (continued)
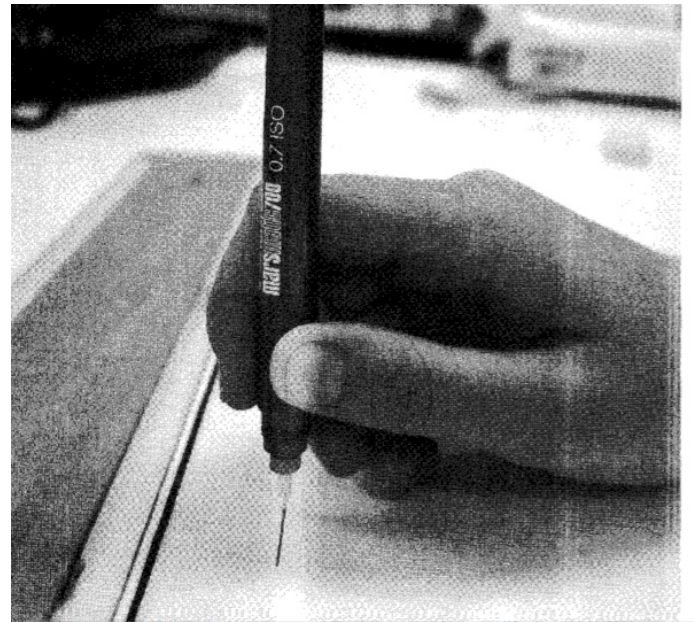Pigment liners are disposable pens.

Figure 4 Drawing with Technical Pens
Technical pens should be held at a 90-degree angle to the paper

.Circle Template (Essential)

A circle template is used to draw circles of various sizes (Figure 5). All the circles on the template have a measured diameter. The usual range of circle templates is from 1/16" to 21/2 ", although larger circle templates can be purchased. It is a very valuable tool for drawing circles quickly and to scale.
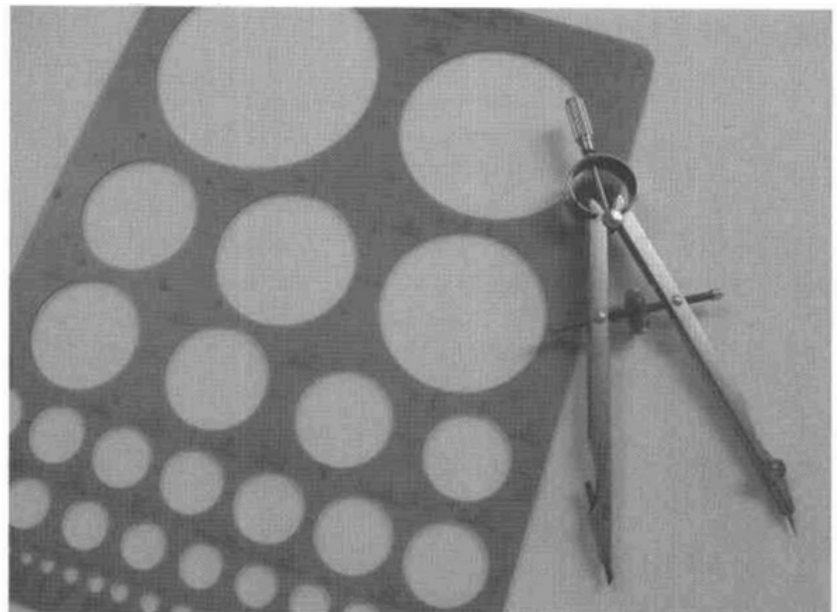

Figure 5 Compass and Circle Template Tools used to draw circles.

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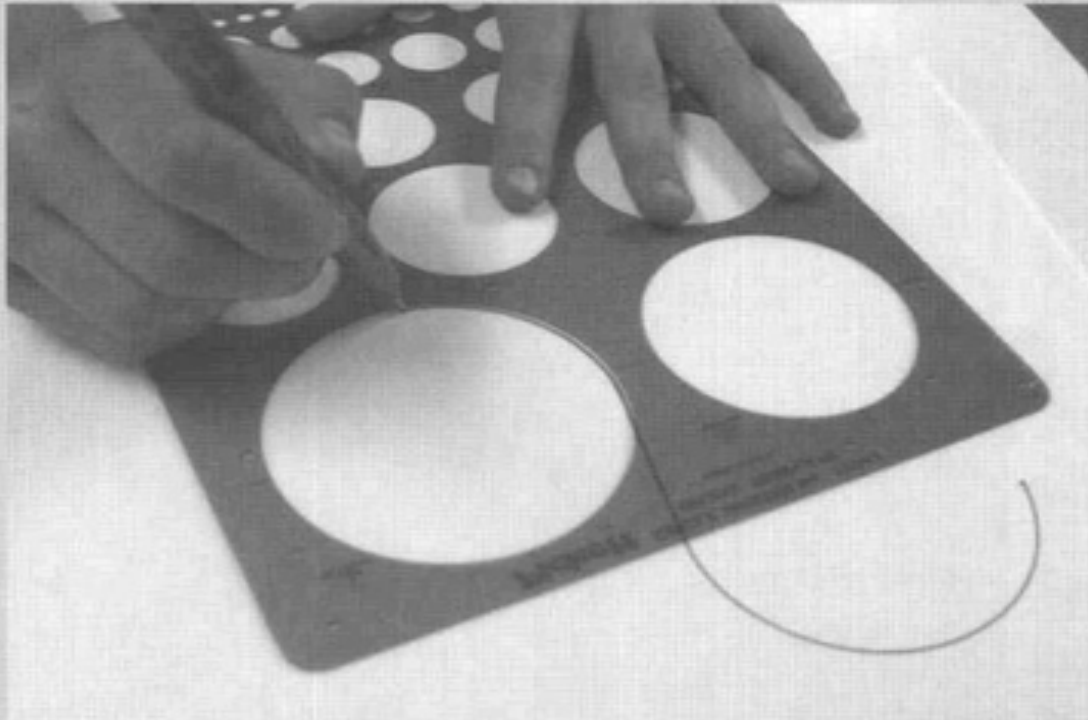
Tip Box: Drawing Bedlines

Figure 2-26 Drawing Bedlines
Using the circle template to draw smooth bedlines.

Large circle templates can be used to draw flowing bedlines by using the circles to connect various arcs. This can create a very nice flow to the line.

Compass (Essential)

A compass is used to draw large circles. It consists of one leg that has a sharp point that sticks into the middle of the circle and another leg with lead at the end. When the com - pass is spun around on the point, the lead draws the circle (Figure 7).

The width between legs is adjustable, often by means of an adjustment knob near the top. Circles can be drawn to scale by adjusting the distance between the point and the lead to equal the *radius* of the circle (Figure 7). By holding the compass legs to the scale, the right adjustment can be made.

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A compass extender is an attachment that can be used to draw larger circles. It simply clips onto the leg of the compass to widen the arc.
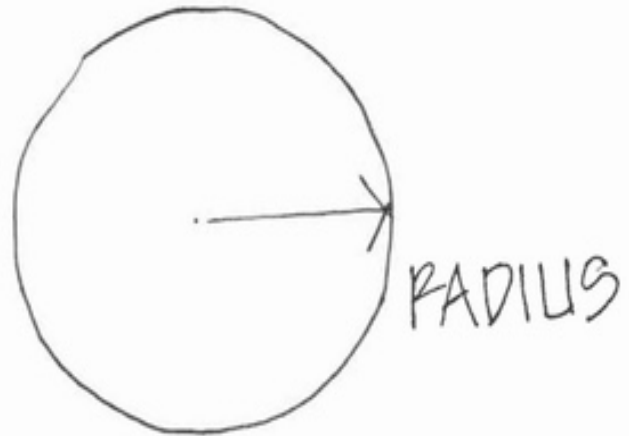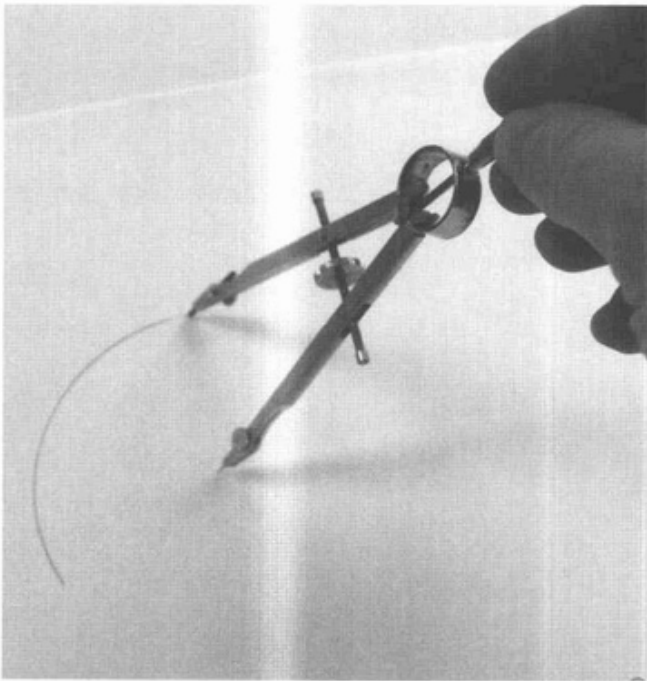

Figure 7 Compass Use sharp end to anchor compass in the center of the circle.

Tip Box: **Sharpening Compass Lead**

COMPASS LEAD

CENTER OF CIRCLE

SHARPEN SIDE ON SANDPAPER

Figure 2-28 Sharpening Lead on Compass
Flatten one side of the lead against paper or sanding paddle to sharpen point.

Sharpen the lead by flattening one side against scratch paper or a sandpaper pad.

Scale (Essential)

A scale is a ruler that has units that represent feet in the plan drawing (Figure 9). It is critical to use it properly, so that the plan drawing is accurate. There are two types of scales: *architect* and *engineer*.
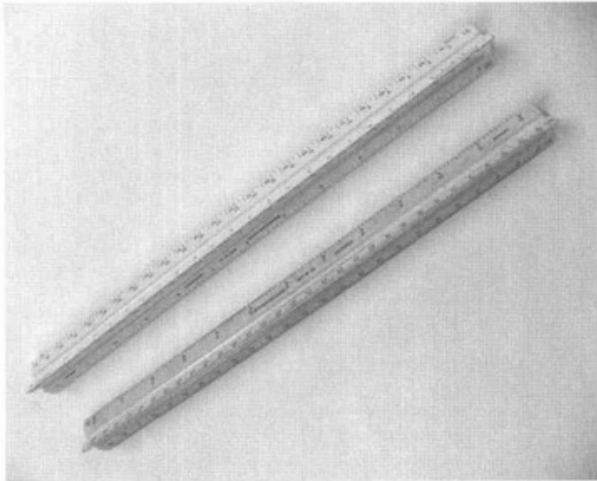

Figure 9 **Scales** Engineer (top)
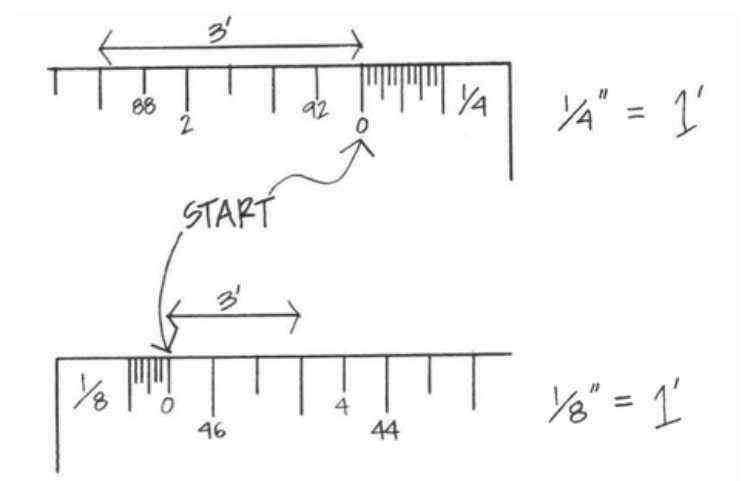
and architect (bottom).

Figure 10 **Architect Scale**

Units of an inch; 1/8" = I'.

An architect scale is based on *units of an inch* (Figure 10,11). For instance, the plan may be drawn so that every 1/4" is equal to 1'. Many designs drawn with an architect scale use 1/8" scale, although it will depend on the scope of the project and size of the paper.

An engineer scale is based on *unit increments* in *an inch* (Figure 12). The to-scale has 10 evenly spaced increments per inch, the 20-scale has 20 increments per inch, and so on. In most cases, it is used so that every increment is equal to a foot. Therefore, if using a lO-scale, where every inch has 10 increments, the scale is 1" = 10".

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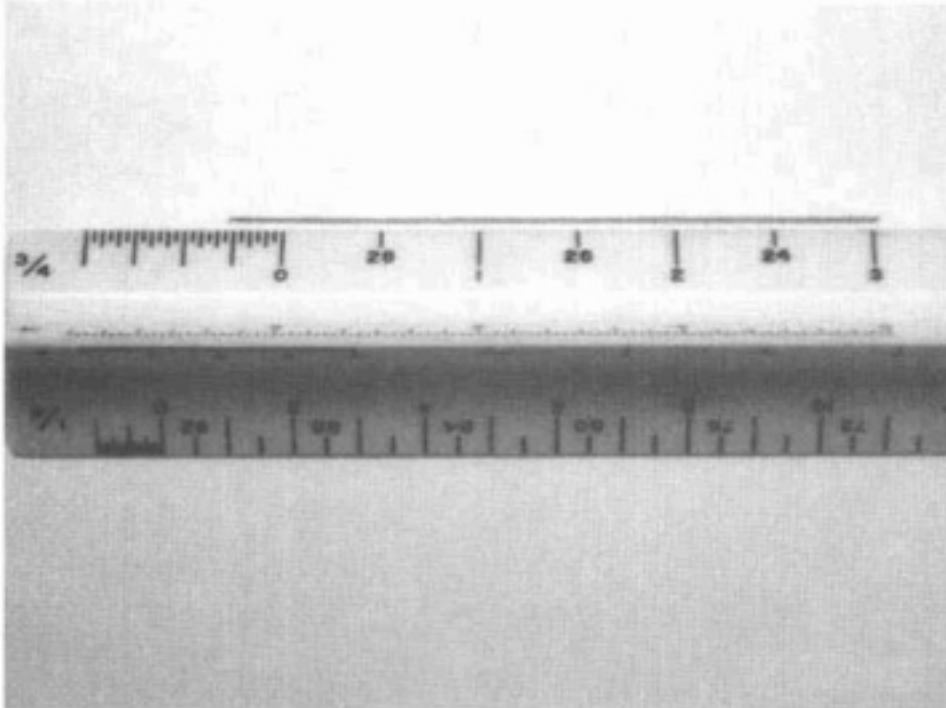
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Figure 11 Architect Scale Using the smaller increments next to the "0" mark to measure lines that are part of a foot . The image represents a 3.25' line.
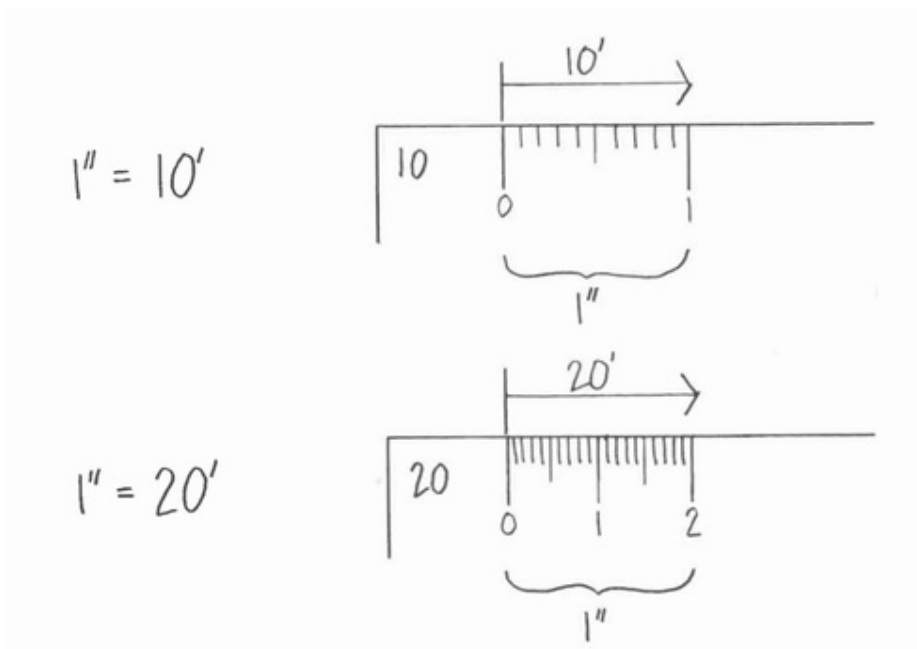

Figure 12 Engineer Scale Units in an inch; 1" = 10'.

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Tip Box: Drawing Circles to Scale (Figure 2-33)

Figure 2-33 Scale and Compass
Adjusting the compass to draw circles to scale. If the scale were 1/8" = 1', then this compass would draw a circle radius of 15' (30' diameter).

Hold the compass up to the scale to adjust the radius (half the diameter of the circle).

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Dry Cleaning Pad (Additional)

What looks like a rosin bag is actually a bag filled with bits of eraser. Use the dry-cleaning pad to dust your paper before drawing to *reduce smudging of lines* (Figure 14). Some de- signers do not care to use a dry-cleaning pad because those bits of eraser can affect line quality and even show up on the print.
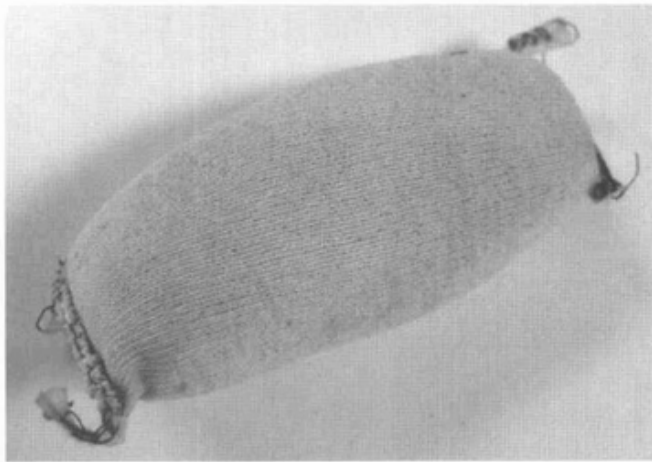

Figure **14 Dry Cleaning Pad**Eraser bits sprinkled over the drawing reduce smudging.

Brush (Additional)

A brush is used to remove eraser bits and other debris from the paper without smudging lines (Figure 15). Using your hand to brush off paper has a tendency to smudge lines. Some prefer to use a clean rag, although the brush is less likely to smudge.
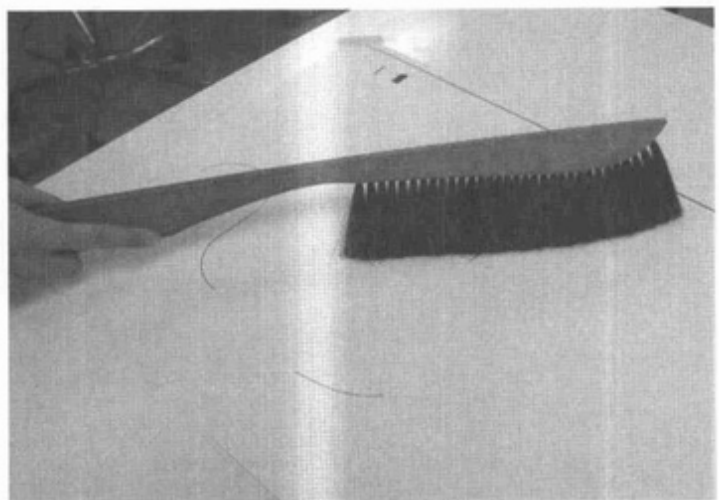

Figure **15 Brush** Removes debris without smudging.

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Protractor (Additional)

A **protractor** is used to measure and draw angles (Figure 16) . This is vital when increasing the scale of property lines. By duplicating the angles, the information is transferred accurately.
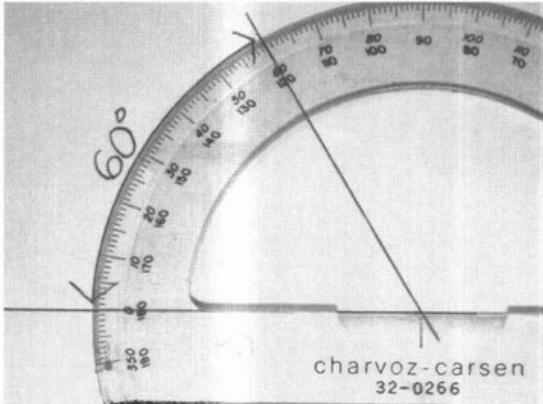

F*igure* **16 Protractor** Measures angles.

Curves (Additional)

A flex curve is a flexible plastic stick that can be shaped to set curves (Figure 17). It is usually 12" to 18" long, sometimes with a ruler printed on the side that can be used to measure linear feet ofa curving line. It can be used to draw flowing bed lines or connect points. A French curve is made of hard, dear plastic and has various arcs that can be used (Figure 18).
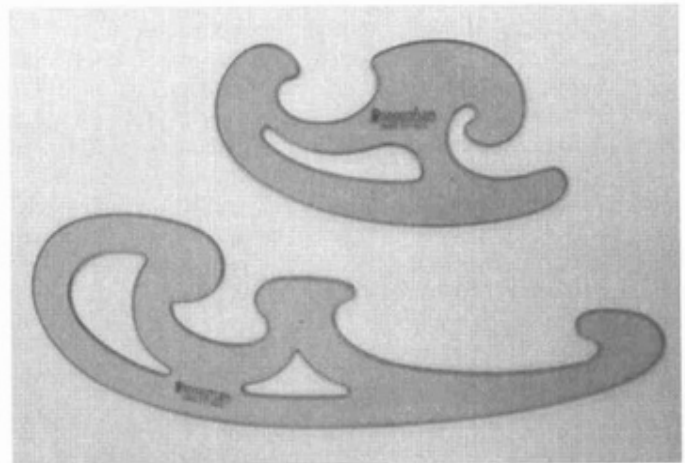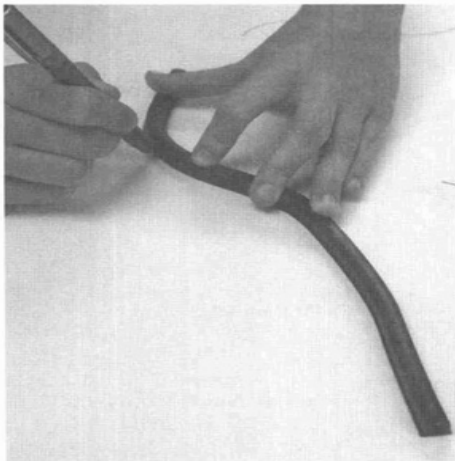

Figure 17 Flex Curve Used to draw curves. **Figure 18 French Curve** Hard plastic

templates used to draw curves.

Parallel Glider (Additional)

A parallel glider is a straightedge set on rubber wheels that grip tightly to the paper and can pull the edge consistently across for parallel lines (Figure 19) .
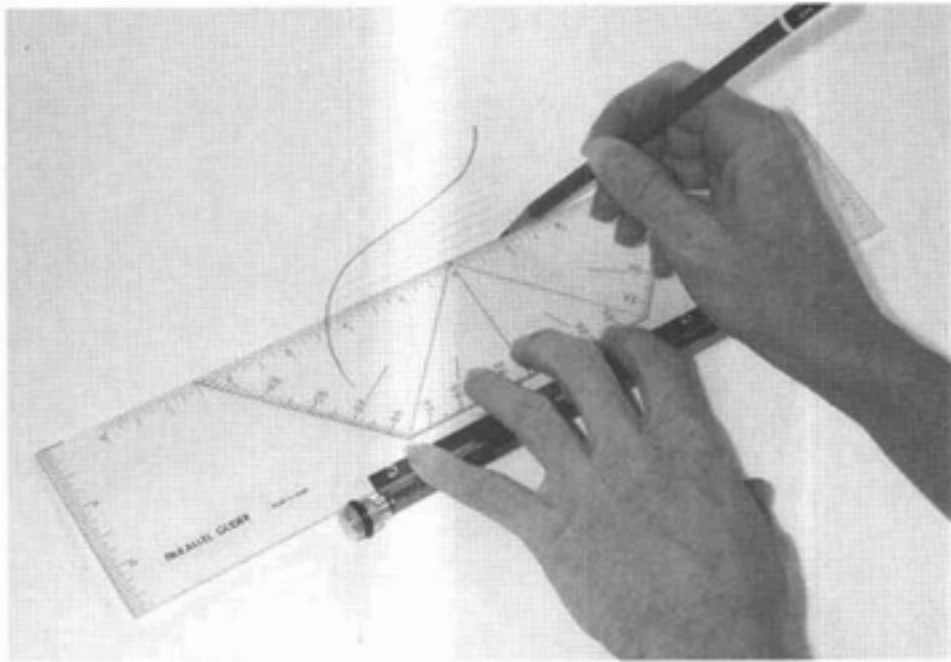

Figure 19 **Parallel Glider** Straightedge on wheels for consistent parallel lines.