

Macomb Community College
DRAD 1110 INTRODUCTION TO
ARCHITECTURAL DRAFTING

South Campus

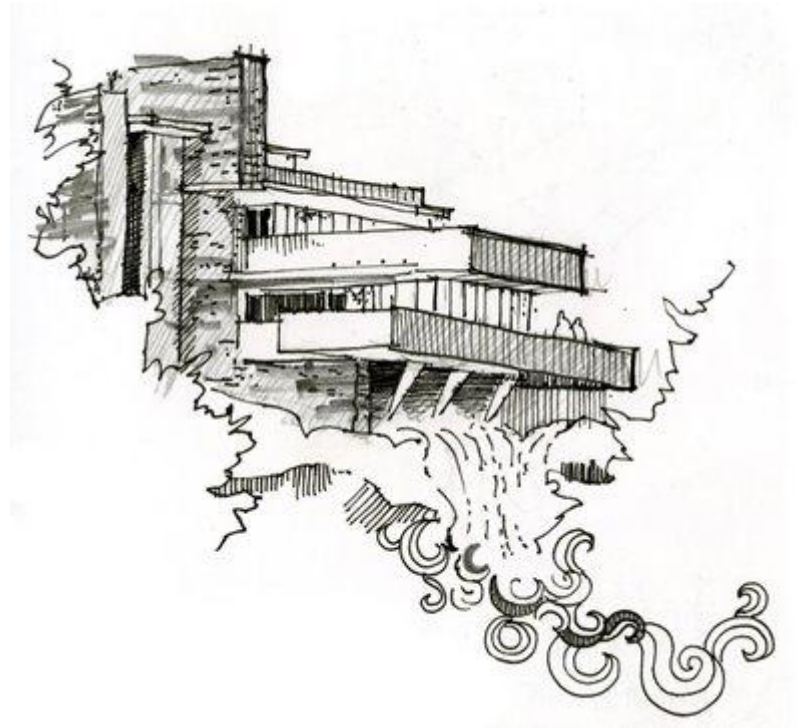
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Instructor: Michael A. Colonna

colonnam@macomb.edu

Alternate email: colonnadesign@gmail.com

Cell: 810.908.2481



LECTURE NOTES

Chapter 5 Sketching

Information taken from the course textbook
Architectural Drafting and Design – 6th Edition
(Alan Jefferies, David A. Madsen and David P.
Madsen) Preface, Prologue, Section 1-Chapter 5

INTRODUCTION

- Sketching is freehand drawing without the aid of drafting equipment.
- Sketching is convenient because only paper, pencil (and markers) and eraser is needed.
- Sketching is a fast, visual communication
- Most drafters prepare preliminary sketches to help organize thoughts and minimize errors on final drawings.

SKETCHING TOOLS AND MATERIALS

- Pencils should be soft lead
- No. 2 pencil or softer works fine
- Mechanical pencils should have soft leads such as H, F, or HB
- Automatic drafting pencils should have soft leads such as F or HB (use 0.7mm – 0.9mm pencils)
- Pencils need not be very sharp
- Sketching paper can be cheap paper such as newsprint, bond (copy) paper, notebook paper, or onion skin
- No need to tape your sketch to your table
- It helps to move the paper around while sketching (some people make better horizontal lines than vertical lines)

SKETCHING STRAIGHT LINES

- Make straight lines in a series of short, connected segments
- Make a straight line by establishing two points then connecting them with a series of short strokes (2-3")
- Sketch your preliminary line by moving the pencil in short, light strokes
- Darken the finished line with a dark, distinct, uniformed line directly on top of the sketched line(s)

MEASUREMENT LINES AND PROPORTIONS

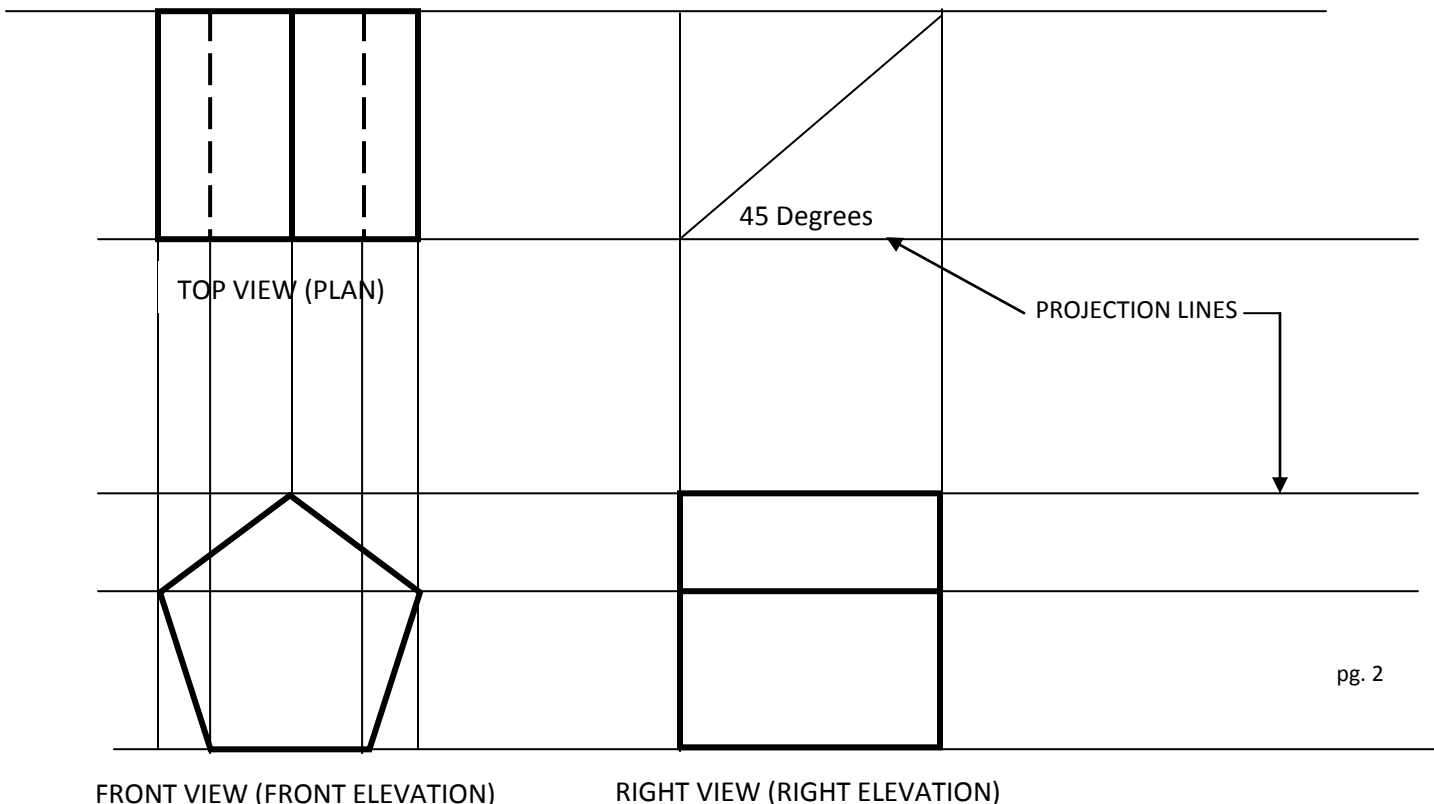
- In sketching an object, all the lines that make up the object are related to each other by size and direction.
- To communicate accurately, your sketch should be proportional to the object both in size and relationship
- The size of the sketch depends on the paper size.
- Sketches should be large enough to convey the idea of the object with clarity and proportion.
- Sketching measurements can be used in the following manners:
 - **Pencil Technique** which uses your pencil as a tool for establishing measurements on a sketch.
 - **Block techniques** which break down the object into few simple geometric shapes and defining portions of the object within that space.
 - **Measurement-line and Block Techniques** establishes measurement lines while establishing the rectangular area of the entire object using proportions to determine height and length.
- Irregular shapes can be drawn using the block method and incorporating reference points and / or a grid pattern.

MULTIVIEW SKETCHES

- A multi-view, or multi-view projection, is known as **orthographic projection**.
- Multi-view projection is the views of an object as projected upon two or more picture planes in orthographic projection.
- Orthographic projection is any projection of the features onto an imaginary plane called a plane of projection (lines of sight perpendicular to the plane of projection).
- Typical orthographic projections on an architectural drawing are called **Elevations Views**.
- Elevation Views are two dimensional views of an object, such as a house, that are established by a line of sight perpendicular to the surface of an object.

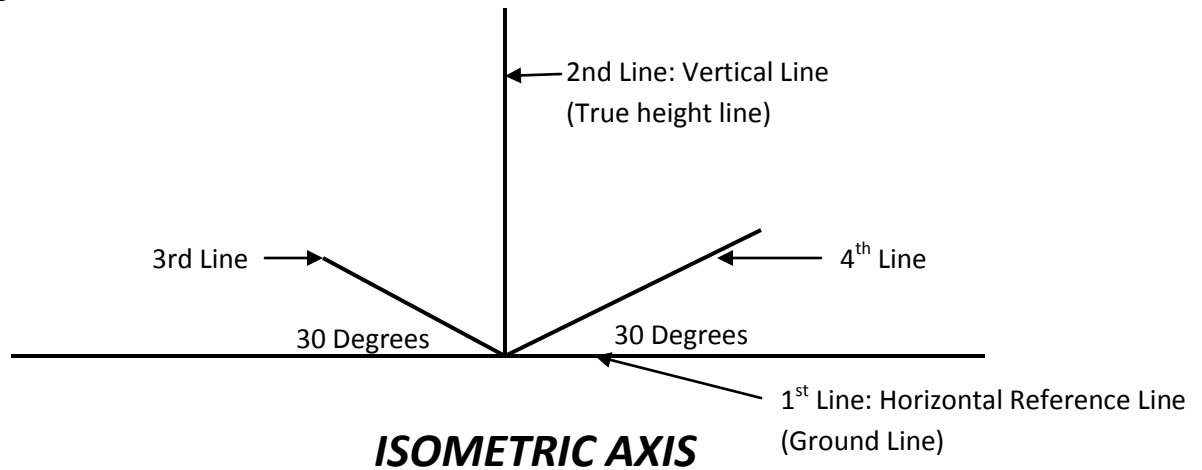
MULTI-VIEW ALIGNMENT

- Multi-view alignments consist of Top View (Plan), Front View (Front Elevation) and Side Views, (Side View Elevations).



ISOMETRIC SKETCHES

- Isometric Sketches provide a three-dimensional (3D) pictorial representation of an object, such as the shape of a building.
- Isometric sketches are easy to draw and provide a fairly realistic 3D view of an object.
- Isometric sketches tend to represent objects as they appear to the eye.
- Isometric sketches can help you visualize an object because three sides of the object are shown in a single three-dimensional view.
- Isometric axis utilizes four beginning lines: a horizontal reference line, one vertical line, and two 30 degree angular lines.

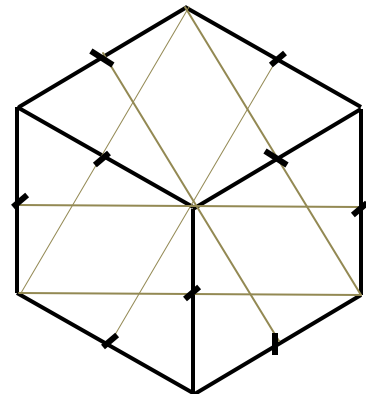


NON-ISOMETRIC LINES

- Isometric Lines are lines on or parallel to one of the three original isometric axes. All others are non-isometric lines.
- Isometric lines can be measured in true length. Non-isometric lines appear either longer or shorter than their actual length.
- Find the endpoints of the non-isometric lines by measuring along the isometric lines.
- To locate where non-isometric lines should be placed, you have to relate to an isometric line.

SKETCHING ISOMETRIC CIRCLES

- Circles and arcs appear as **ellipses** in isometric views.
- To draw an ellipse, sketch line segments connecting the 120 degree corners to the centers of the opposites sides and connect the points using arcs (two larger and two smaller arcs).



ORTHOGRAPHIC PROJECTION IN DRAWING

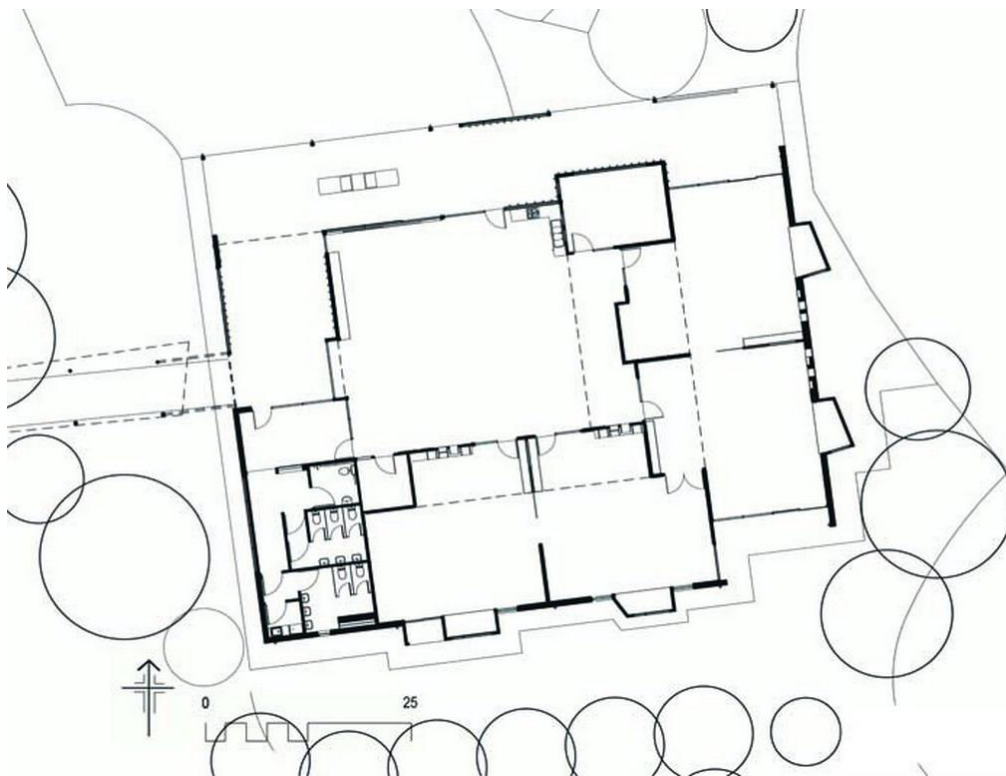
- Orthographic Projection is any projection of features of an object onto an imaginary plane called a ***Plane of Projection***.
- Drawing of the object is made by lines of sight that are perpendicular to the plane of projection.
- When the surface of the object is parallel to the plane of projection, the surface appears in its true size and shape on that plane.

MULTI-VIEW PROJECTION IN DRAWING

- Multi-view projection establishes two or more views of an object as projected on two or more planes by using orthographic projection.
- Multi-view drawings represent the shape of an object using two or more views.
- There are six possible views: Top, Front, Right Side, Left Side, Rear and Bottom View.
- In architecture the two-dimensional views of the exterior or interior of the building are called Elevations.
- Elevations provide representations of exterior materials or interior views of features such as kitchens and bath cabinets.
- Top Views in architecture would be the view looking down on the object from above in true view. Such top views would include; FLOOR PLANS, FOUNDATION PLANS and ROOF PLANS.
- Front Views in architectural drafting would be considered as the FRONT EXTERIOR ELEVATION which shows the façade of the building in true view (meaning all lines are drawn to scale).
- Rear Views in architectural drafting would be called REAR EXTERIOR ELEVATION.
- Right Side and Left Side Views would be called RIGHT SIDE ELEVATION and LEFT SIDE ELEVATION.
- When the north, south, east and west views are established elevations are called out accordingly. NORTH EXTERIOR ELEVATION, SOUTH EXTERIOR ELEVATION, WEST EXTERIOR ELEVATION, and EAST EXTERIOR ELEVATION.
- When calling out 'NORTH EXTERIOR ELEVATION' the view is the north façade of the building (looking south).



FRONT EXTERIOR ELEVATION



FLOOR PLAN