ID 40
Residential Design
Axonometric Views
An Easy Third Dimension:

- Drafted elevations create 2-dimensional views showing width and height.
  - We cannot indicate depth...
- Sometimes the nature of a project requires a 3-dimensional view.
- **Paraline drawings** offer an easy method of drawing all three dimensions using standard drafting tools.
Three Types of Paraline Drawings

In each of these drawings:
1. All vertical lines remain vertical.
2. All parallel lines remain parallel.
3. All lines parallel to X·Y·Z axes can be drawn to scale.

**ELEVATION OBLIQUE**
- A vertical plane remains parallel to the drawing surface, showing itself in true size (to scale), shape, and proportion—this face of the building should be the length of the building, the most significant face, or the most complex.

**ISOMETRIC**
- All three visible surfaces have equal emphasis.
- Isometric projection is relatively inflexible.
- Orthographic plans and elevations can never be used in an isometric drawing.

**PLAN OBLIQUES**
- A 45°·45° oblique has a higher angle of view than an isometric, and horizontal planes receive more emphasis.
- A 30°·60° oblique also has a high angle of view with one vertical plane receiving more emphasis than the other.
Small or Large, Single Room or Entire Structure

By turning the floorplan at an angle, you can add the third dimension and provide the viewer an enhanced view of your design.

But - it isn’t a perspective drawing!

30 Degree Angle

60 Degree Angle
X, Y, and Z Axis

- **X Axis** = Width
- **Y Axis** = Depth
- **Z Axis** = Height
All Vertical Lines Remain Vertical.

Vertical lines lie on the Z axis.

They are absolutely vertical - use a 90 degree triangle against your parallel bar or T-square.
All parallel lines remain parallel.

All lines that would normally be horizontal or vertical on your floorplan, will be drawn at $60^\circ$ or $30^\circ$ to the parallel bar or T-square.

All normally horizontal lines will remain parallel to each other, etc.
All lines parallel to X, Y, or Z axes can be drawn to scale.

All lines are drawn to scale, whether on the 30° X axis, the 60° Y axis, or the vertical Z axis.

If the column is 10'-0" tall, locate the center of the bottom and measure 10'-0" vertically to get the center of the top.

The top of the wall is drawn parallel to the bottom of the wall.
Rendered with shadows, you can’t tell it isn’t a true perspective drawing.
Advantages:

- **Scalable and Measurable:**
  - ▼ All lines are drawn to scale - not shortened to accommodate a shrinking perspective.

- **Based upon the plan view** (the most common view drawn):
  - ▼ May substitute for elevation drawings when presentation is most important.
Kitchen Axon Example:

Compare these two drawings:
Which angle?

All of these axons are tilted either 30° or 60°. Each one showcases some objects and obscures others. Select an angle depending on what’s important in your design.
Getting Started:
Mount a blueprint of your floorplan (at the chosen angle). Place a vellum sheet on top of it for your axonometric.

First draw the wall outline on your new vellum.
Measure vertically to determine the wall height.

Identify all elements on the plan shown at different heights.
Drafting Objects at different heights:

You can do this two ways:

In this example, the blue lines are the original floorplan lines.

The black lines indicate the counter is 3'-0" above the floor.

Draw vertical guidelines (shown in red) at the major points and make a mark 3'-0" vertically to identify the points of your axonometric. Then draft the counters “connecting the dots.”
Shifting the floorplan:

Another method:

Draw one guideline to find the 3’-0” elevated point.

Remove your vellum and shift it vertically to align with the elevated point.

Copy in the counters directly from the floorplan.

Doing this will take thinking and planning, but will make drawing the axonometric easier over time.
Things to consider:

- Providing 3-dimensional views take time and cost the client more money:
  - Determine which method will work best for your client: elevations, axons, or perspectives.

- Axon drawings are for presentation purposes only.
  - Axons are never included in the plan set of working drawings.
  - Elevations would always be included...
Final Touches:

- Always render any presentation drawings.
- Clients are visual...they remember only a portion of what is said verbally:
  - The quality of your visual presentation is often what sells the design.
- Be considerate of budget constraints.
  - Let the scope of the project determine how much time you spend on your rendering approach.
Project Requirements:

- You are required to provide three elevated views for the final presentation. (Select the method you prefer).
- One view of each of the following is required: Additional views are always helpful….
  - Living Area
  - Kitchen
  - Barrier-free Bathroom
- We will discuss Presentation Boards during the next class session.