

4.501 Recitation 4

DRAWING GENERATION: CREATING PLANS, SECTIONS AND ELEVATIONS FROM A DIGITAL MODEL

Within the model, create reference planes for drawing views

- Insert a new Part and name it Drawing Support Geometry
- Select the plane creation icon and choose a support and an offset
 - o If the model is drawn at the origin, the easiest method is to reference the xy plane for plans and the yz and xz planes for sections and elevations
 - o Create additional planes offset a certain distance. For example, for floor plans, you may want to offset the first plane 3' from the xy plane, and continue to offset it every 12' from there to create supports for plans at each level

Enter the Project workbench by either double-clicking on the current workbench to reveal the workbench icons, or select the Start menu and choose the workbench from the list

Within the Project workbench, annotations can be made, spreadsheets can be generated with part information, and camera views can be generated within the drawing.

- Zoom to the desired view and select the Camera Icon on the bottom of the screen to generate a camera view. It will appear in a subset called Applications in the structure tree
- Create a reference section
 - o Click the Sectioning icon in the Spatial Analysis toolbar
 - o A Section Window will pop up and a corresponding section plane will appear in the model window
 - o The section plane can be dragged to various points on the model, and the “volume cut” icon on the result tab will change the view to remove the sliced portion
- Create a 2D annotation in a specific view
 - o Orbit to the desired view and click the 2D icon (left toolbar)
 - o The 2D annotation toolbar will come up, which allows you to create arrows and text notes for others using the model
- Create 2D Views for Drawing Generation
 - o Select the desired view icon from the left hand tool bars, or select insert, drawing views, and your desired view from the drop down menu—in this case, select section view
 - o It will prompt you to select a reference plane or surface, select one of the created reference planes
 - o The set view plane will be placed in an “Annotation Set” subset of the structure tree, right click on the view in the tree to change its name to apply to the drawing it will generate, i.e. Plan01
 - o Annotations can be made on the Annotation Plane of this view which will show up in the 2D drawing you produce, to create annotations select the “text with leader” icon and insert the note
- Enter the Drawing Generation Workbench to create a 2D drawing
 - o A drawing window will open, adjust the windows so both the model and drawing are visible
 - o With the drawing active, select the “view from 3D icon”
 - o Select the view created in the model using the structure tree
 - o The view will be projected in the drawing window
 - o Click on the Drawing window to activate it
- Change Drawing Scale, Lineweights and Annotations
 - o Right click on the Name of the View in the Drawing Sheet Structure Tree

- Select Properties, under the View tab, the scale of the drawing can be changed. In addition, you can choose which 3D elements should show up in the drawing.
 - To move the drawing, the icon at the top of the screen called “Position View at Origin of Sheet” will put it generally where it needs to be, then drag it to the appropriate location by clicking on the viewport
 - Drawing lineweights, hatches and text properties can be edited by right clicking on the element and choosing “Properties”
 - Additional drawing tools are available in the Insert drop down menu, such as Annotations (text and leaders), 2D drawing tools and translations. These can be used to create titleblocks.
- Insert a 3D view of the Model
 - Select the “Isometric View” icon, in the Drawing Generation Workbench (in the same toolbar as the “View from 3D” icon)
 - Select a reference plane (xy in this case)
 - The axonometric will appear in the drawing along with a blue compass
 - Use the arrows on the compass to rotate the axo to the desired view
 - When finished, click on the center circle. Note: once the circle is clicked, the drawing is set and cannot be rotated between 3D orientations any longer
 - Scale the drawing and set properties the same as with the other views
 - Save the drawing as a CATdrawing. It can also be saved as a .dwg, but each element is an individual line on the same layer when imported, so it is best to print and setup drawings from DP, Saving as a CAT drawing is helpful when creating cut sheets.