Lesson on 3D in AutoCAD Architecture 2010

Menu View Tab

Visual styles
        2D wire frame
        3D Hidden
        3D wireframe
        Conceptual
        Realistic

View cube (displayed in all Visual Styles except 2D wire frame)

Shading
        No shading
        Realistic (converts materials into nearest color)
        Gooch (approximates bright and dim areas of surfaces)

Edge display of objects in 3D
        No Edges
        Isolines
        Facet edges (no different from Isolines for planar surfaces)

3D "primitives"

Lines, arcs, circles, points
        Elevation
        Thickness
3D line
.xy filters

3D face

3D shapes (Mass elements) - Home tab>Box
        Hollow on inside after exploding twice

3D solids
        Regions - closed polylines (such as polygons or rectangles) - Flat surfaces
        Solids - 3D objects with length, width and height
        Draw a closed polyline
                Extrude it (EXT <ret>)
                Taper
                Change height, length and width
                Unify (UNI<RET>)
                Subtract (SU<RET>) - pick part you want to keep then pick part you want to subtract from it
                Intersect (IN<RET> - pick two 3D solids and reduce to the part contained within both
                How to patch voids or holes in 3D solids

False "solid:" The old "solid" command SO<RET>

3Drotate
3dscale
3dcorbit
3dmove (can move objects vertically along the Z axis)

User Coordinate System (UCS) - allows you to draw on vertical or sloping surfaces
      Ucsicon
      Dducs
      View (V)
      UCS 3 (for 3 point setting of a User Coordinate System)

3D DWFs

Viewports
Model space viewports
Layout viewports

AutoCAD Architecture (ACA)

General introduction to ACA Workspaces, Profiles and Templates

Level of detail: "Display Representation" icon in status bar

ACA Walls
To create a new wall style: Manage>Style manager>Architectural Objects>Wall Styles
Right Click on Wall Styles and select "New"

General Tab: give a name to the style

Components Tab: only one component is listed, select the "Add Component" button on the upper right side of the dialogue box, as many times as there are to be layers in the wall; give each component a name a width and a distance from one side of the wall or the centerline of the wall (so-called "Edge Offset");

Materials Tab: for each component give a material definition; select the "Add New Material" button on the right side of the dialogue box and give the material a name like Brick, or Insulation; you do not need to edit the material, unless you want to since the display of the materials will be set under the Display Properties Tab below.

Display Properties Tab: Note that each possible view of the wall will be listed in this dialogue box; select the Plan view first to bring up the Display Properties dialogue box; under the Layer/Color/Linetype Tab, assign all display components visibility, "By Material" or not (usually not) and layer: Color, Linetype, Lineweight, and Plot Style should always be set to "Bylayer;" Linetype Scale always set to 1.0000; for each hatched component, assign a hatch pattern. You can set up the display you want for each other way of looking at the wall, such as the 3D "model" or the Reflected Ceiling Plan, and other

To help you get the hang of this way of making walls, draw a "Brick 4-Air 2-Brick 4" wall or one of the other complex walls from the Tool Palette in model space, right click on it and select "Edit Wall Style" then look at the various settings to see how they created it.

The Properties Palette

You should be familiar with this by now - it is the same as in vanilla AutoCAD

The Tool Palette

Add more wall types to the Palette from the "Design Tool Catalogue"; drag onto the Palette with the eye dropper

Make a new wall type; save the drawing; go to Manage>Style manager>Architectural Objects>Wall Styles and drag the new wall type onto the Palette

Move wall types into a different order on the Palette (drag)

Delete wall types from the Palette (right click and select "Delete")

ACA Doors

Similar to walls
You can show the door swing differently in plan or model (3D) view: right click on a door in the plan and select Edit Door> go to the "Other" tab and unselect "override door swing"

Render Tab

Set Location - this sets latitude and longitude based on the US map and creates the proper sun location altitude and azimuth of the sun on a particular day and time - under the Sun Location dialogue box (click on the diagonal arrow) you can precisely set the date and time

Sun status - you can turn sun on or off

Materials - turn materials and textures on

Create light
    Point
    Spot (set location and target)
        Once you have made a light, click on it to change its attributes such as
        intensity and vertical elevation.
        Do not use this to create distant lights - the only distant light should be the
        sun, which is created once you set the location of the drawing.

Create camera
    Pick camera and target location; hit space bar to mirror direction camera is
    pointing - enter key - then click on camera and fine tune location and clipping
    planes.

Render
    Choose High or Presentation method
    full drawing or render region
    render to a file as a TIF file

Output

Note that the rendering will not be saved unless you select a file type and location to
save it to in the Rendering dialogue.