Webinar on

Dynamic Blocks in the FDOT Civil 3D 2016 State Kit

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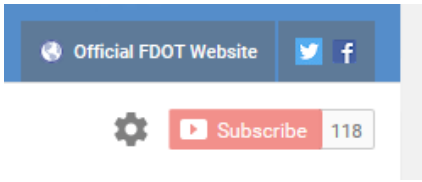

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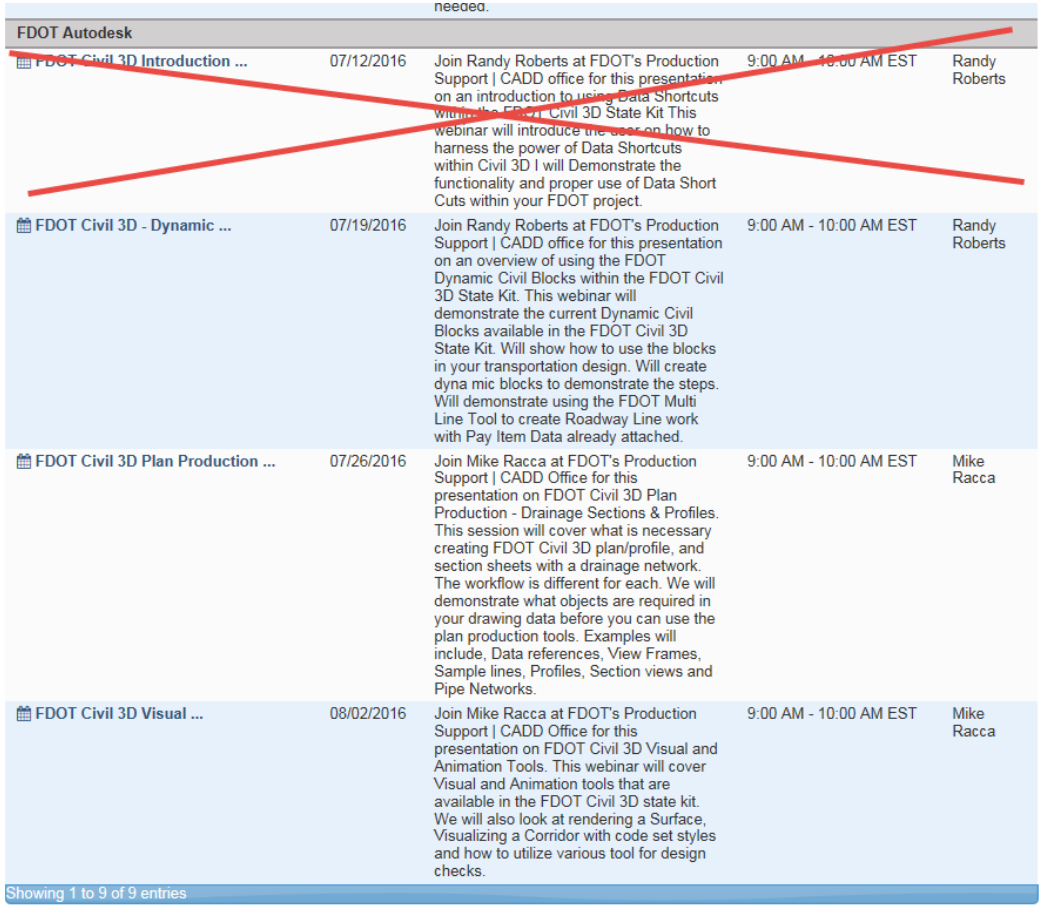

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FDOT Autodesk				
FDOT Civil 3D Introduction ...	07/12/2016	Join Randy Roberts at FDOT's Production Support | CADD office for this presentation on an introduction to using Data Shortcuts within the FDOT Civil 3D State Kit This webinar will introduce the user on how to harness the power of Data Shortcuts within Civil 3D I will Demonstrate the functionality and proper use of Data Short Cuts within your FDOT project.	9:00 AM - 10:00 AM EST	Randy Roberts
FDOT Civil 3D - Dynamic ...	07/19/2016	Join Randy Roberts at FDOT's Production Support | CADD office for this presentation on an overview of using the FDOT Dynamic Civil Blocks within the FDOT Civil 3D State Kit. This webinar will demonstrate the current Dynamic Civil Blocks available in the FDOT Civil 3D State Kit. Will show how to use the blocks in your transportation design. Will create dyna mic blocks to demonstrate the steps. Will demonstrate using the FDOT Multi Line Tool to create Roadway Line work with Pay Item Data already attached.	9:00 AM - 10:00 AM EST	Randy Roberts
FDOT Civil 3D Plan Production ...	07/26/2016	Join Mike Racca at FDOT's Production Support | CADD Office for this presentation on FDOT Civil 3D Plan Production - Drainage Sections & Profiles. This session will cover what is necessary creating FDOT Civil 3D plan/profile, and section sheets with a drainage network. The workflow is different for each. We will demonstrate what objects are required in your drawing data before you can use the plan production tools. Examples will include, Data references, View Frames, Sample lines, Profiles, Section views and Pipe Networks.	9:00 AM - 10:00 AM EST	Mike Racca
FDOT Civil 3D Visual ...	08/02/2016	Join Mike Racca at FDOT's Production Support | CADD Office for this presentation on FDOT Civil 3D Visual and Animation Tools. This webinar will cover Visual and Animation tools that are available in the FDOT Civil 3D state kit. We will also look at rendering a Surface, Visualizing a Corridor with code set styles and how to utilize various tool for design checks.	9:00 AM - 10:00 AM EST	Mike Racca

Showing 1 to 9 of 9 entries

What will be covered in this session

- What is a Dynamic Civil Block?
- What Dynamic Blocks are in the State Kit
- How Dynamic Blocks are used
- Creating a Curb & Gutter Dynamic Block
- Using the FDOT Multi Line Tool

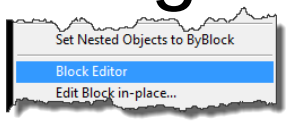
What is a Dynamic Block

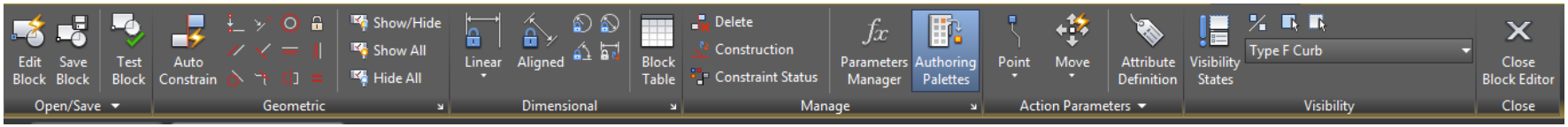
Dynamic properties when added to a block definition allow you to rotate, move, stretch, and perform other actions on the objects within a block reference. You can only add dynamic properties to a block definition using the Block Editor.

Recommended Steps to Create Dynamic Blocks	
Plan the block content	Know how the block should change or move, and what parts will depend on the others. **Example:** The block will be resizable, and after it is resized, additional geometry is displayed.
Draw the geometry	Draw the block geometry in the drawing area or the Block Editor
Add parameters	Add either individual parameters or parameter sets to define geometry that will be affected by an action or manipulation. Keep in mind the objects that will be dependent on one another.
Add actions	If you are working with action parameters, if necessary, add actions to define what will happen to the geometry when it is manipulated.
Define custom properties	Add properties that determine how the block is displayed in the drawing area. Custom properties affect grips, labels, and preset values for block geometry.
Test the block	On the ribbon, in the Block Editor contextual tab, Open/Save panel, click Test Block to test the block before you save it.

Block Editor Ribbon & Authoring Palettes

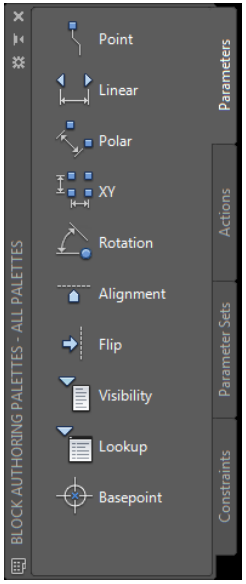
To get to the Block editor select a block > Right Click > Block Editor





The Block Authoring Palette Options

Parameter
s Tab



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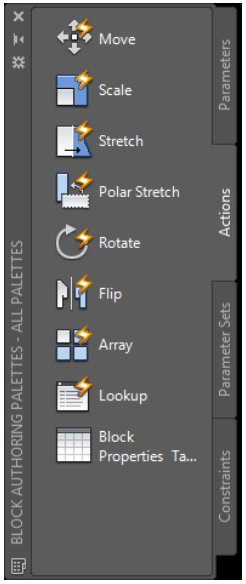

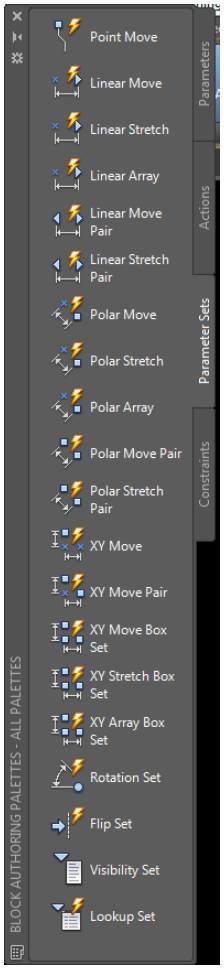

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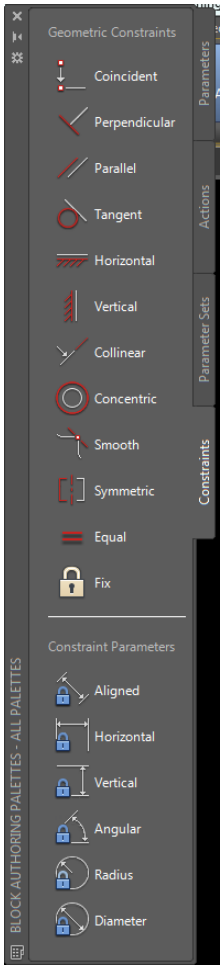


Constraint
s Tab

For more detailed information on each item press F1 for Autodesk help files.

Parameters and Actions

Parameters in a dynamic block define how geometry within a block reference can be modified and they are paired with an action.

Point – The point parameter defines a point in the block that can be used to move or stretch the geometry associated with that coordinate value. **Actions:** Move and Stretch.

Linear - This parameter is used to modify geometry along a linear path. **Actions:** Array, Move, Scale, and Stretch.

Polar - The polar parameter is used to modify geometry along a polar path. **Actions:** Array, Move, Scale, Stretch, and Polar Stretch.

XY - Use the XY parameter to modify geometry in both a horizontal and vertical direction. **Actions:** Array, Move, Scale, and Stretch.

Rotation - This parameter rotates geometry around a given point. **Action:** Rotation.

Alignment - Use this parameter to align a block perpendicular or tangent to the objects it is inserted near. **Action:** No action required.

Flip - The Flip parameter mirrors that block reference and all objects in it. **Action:** Flip.

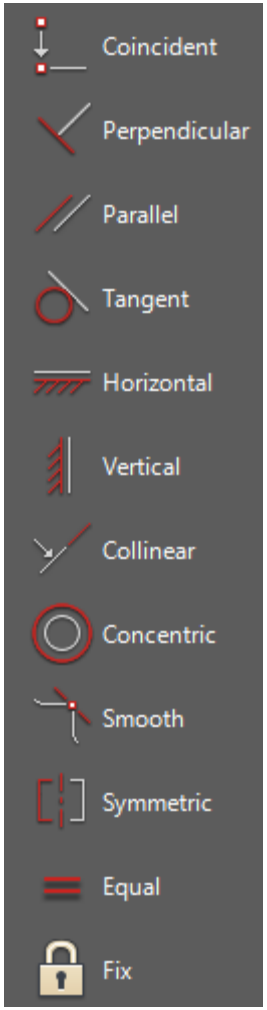
Visibility - When you need to control the use of visibility states for the geometry within a block reference, add the Visibility parameter. **Action:** No action required.

Lookup - The Lookup parameter creates a mapping table between a list of values and custom properties. **Action:** Lookup.

Base Point- The base Point parameter redefines the block definition's insertion point. **Action:** No action required.

Geometric Constraints

Below is a list of available Geometric Constraints and their purpose



Coincident – Keeps point locations of two objects together, such as the endpoints or midpoints of lines. Allowable points vary between objects, and they are indicated by a red circle marked with an X while points are being selected.

Perpendicular -Keeps lines or polyline segments perpendicular

Parallel - Keeps lines parallel.

Tangent - Keeps curves, or a line and curve, tangent to each other.

Horizontal - Keeps lines horizontal.

Vertical- Keeps lines vertical.

Collinear - Keeps lines collinear. The lines need not be connected.

Concentric - Keeps circles and arcs concentric.

Smooth - Maintains a smooth transition between splines and other objects. The first object selected must be a spline. You can think of this constraint as a tangent constraint for splines.

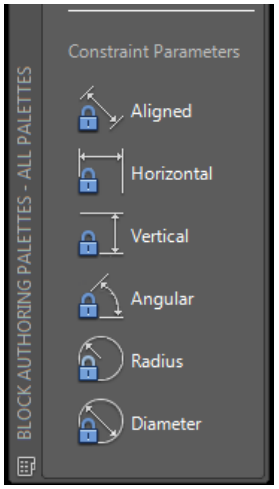
Symmetric- Maintains symmetry between two curves about an axis that is determined by a line. Before using this constraint, draw a line that you will use for the axis of symmetry. You can also use the Fix, Horizontal, or Vertical constraint to fix the axis to a location or orientation.

Equal - Keeps the length of lines or polylines equal, or the radius of arcs and circles equal.

Fix - Constrains a point or a curve to a fixed location and orientation relative to the World Coordinate System (WCS)

Constraint Parameters

Below is a list of available Constraint Parameters and their purpose



Aligned – Constrains the length of a line, or the distance between two lines, a point on an object and a line, or two points on different objects.

Horizontal - Constrains the X distance of a line or between two points on different objects.

Vertical - Constrains the Y distance of a line or between two points on different objects.

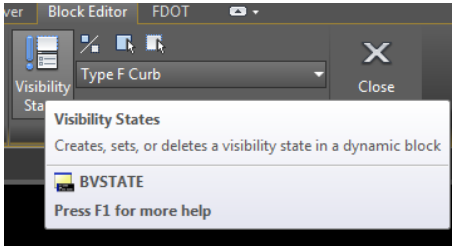
Angular - Constrains the angle between two lines or polyline segments.

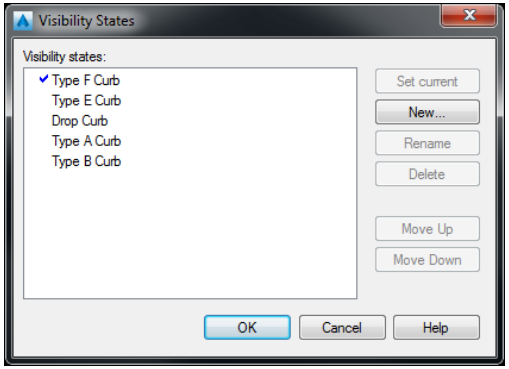
Radius - Constrains the radius of a circle or an arc.

Diameter- Constrains the diameter of a circle or an arc.

Using Visibility States

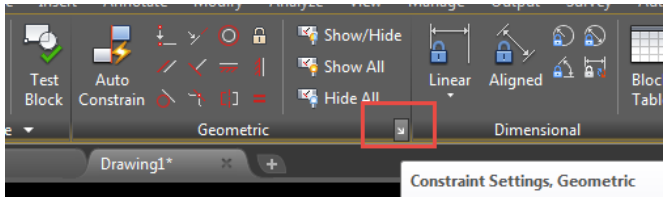
Visibility States are an important tool when working with Dynamic Blocks.
As an example the Curb & Gutter Block has 5 different Curb Types. What this means is you can control individual lines on the same layer. Think of it as a layer state or Layer Snapshot of what is on or off.

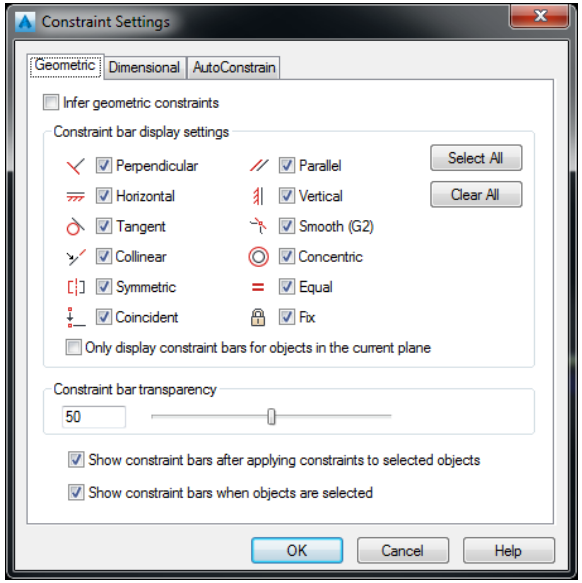


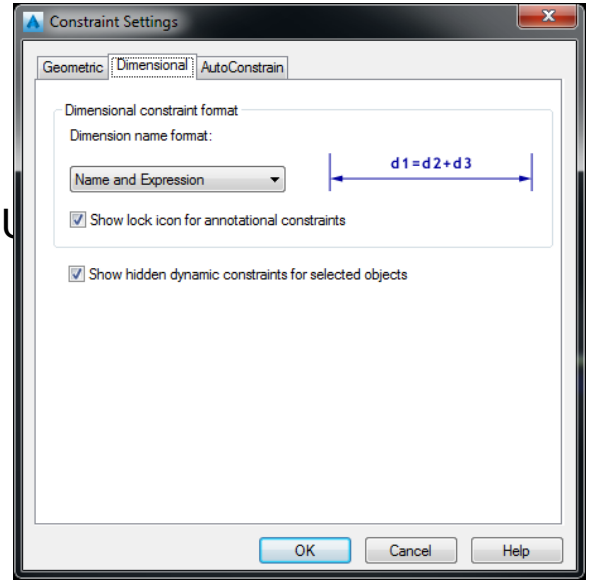


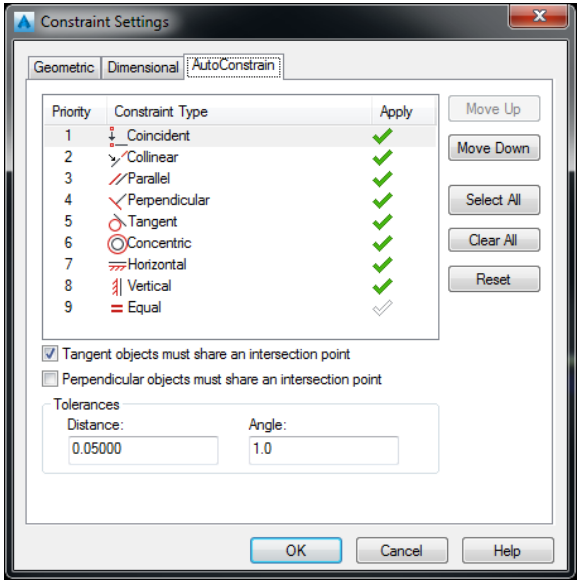
Constraint Settings

To access the Constraint Settings click on the Expanding Arrow in the Bottom Right corner of the panel.









As the images above show, you can edit what constraints are visible on the Ribbon, how the Dimensional Constraints are displayed, and which Constraints are used when the Auto Constrain function is executed.

Thank You for attending todays Webinar!!

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